U.S. Army medical museum.

A HISTORY

of the

UNITED STATES ARMY MEDICAL MUSEUM

1862 to 1917

COMPILED FROM THE OFFICIAL RECORDS

BY

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Pathologist
of the
Museum.

INDEX TO HISTORY OF ARMY MEDICAL MUSEUM.

INDEX TO HISTORY OF ARMY MEDICAL MUSEUM

Corrections in the Index.

Insert thx following:

Burglary, 39
Burnett, S. M., Washington, D. C. 103,146,151.
Schafhirt, E., Anatomist, Museum, 15,21,28,33,36,42,83.
Under Specimens, insert "Frederick, Md., 8,9,30.

Corrections in names

Backe should be Bache
Freedman should be Freedmen
Hichling should be Hickling
Judson, C. A. should be O. A.
Reardon, F. J. should be J. F.

Corrections in figurxs

Amxrican Mxdical Association; 126 should be 136
Balloch; 510 should be 150
Billings; 10 should be 101
Buchhold; 150 should be 153
Bureau Education; omit 103, 146, 151; insert 136
Hrdlicka; 23 should be 123
Insects; b72 should be 72
Keen; 88 should be 78
Kennon; 67 should be 57
Lamb, D. S.; 136 should be 135
McCaw; 130 should be 140
Moseley; 122 should be 1, 2.
Townsend; 71 should be 70
Woodward; J. J.; in 2d and 4th lines, 37 should be 38; in 2d line, 47 should be 48.

CORRECTIONS

Page I; Dr. Moseley was Surgeon U. S. Vols.
Page 19; 1sth line from bottom; the words "should be Summer" should be in Brackets.
Page 23; after the words "General Barnes", add the date Sept. 24, 1863.
Page 24; the parenthesis in Brinton's quotation should be brackets.
Page 32; footnote; 133 should be 113
Page 40; J. K. Mitchell should be J. A. Mitchell.
Page 56B; The word "Flatheads" should be capitalized.
Page 57; 5th line from top; cavies should be caries.
Page 88; 8th line from top; circinoma should carcinoma
Page 90; 3d line from top; or should be of
Page 91; 7th line from top: Bd4 should be Bb4
Page 96; 2d line of circular; not should be now.
Page 100; under no. 18, trichinia should be trichinae
Page 110; 11th line from top; Peur should be Peru. The paragraph at the bottom of the page should not be in quotation marks.
Page 112; in Dr. Reed's letter, "1. E. Rauterberg?" should be in brackets.
Page 129; under 97, tschium should ischium
Page 130; under 32, desquamation should be desquamative; under 81, inciser should be incised.
Page 131; under 83411, tissured should be fissured
Page 138; F. P. Russell should be F. F. Russell
Page 140; 15th line from top, Ludlaw should be Ludlow.
Page 143; xlii in bottom line should be clii
Page 146; 20th line from top; Johnson should be Johnston
29th line from top; Nartholf should Bartholf
Page 147; 26th line from top; G. H. Acker should be G. N. Acker
Page 148; Hewitt in bottom paragraph should be Hewit
Page 151; 9th line from top; J. E. Baxter should be J. H. Baxter;
3d line from bottom, C. S. Winslow should be C. B. Winslow.
Several mistakes in spelling nontechnical words will be obvious and need not be pointed out.

THE ARMY MEDICAL MUSEUM WASHINGTON D.C. (1)

On April 25, 1862, Dr. William A. Hammond, then an Assistant Surgeon, was appointed Surgeon General, U.S. Army.

At that time, there were in the private office of the Surgeon General a few preparations of human anatomy, which had long been there, or in the adjoining library room. The collection comprised several human crania, a skeleton, two wax injections demonstrating the vascular system and made by Dr. C. S. Tripler, Surgeon, U.S.A., a wax injection made by Dr. N. R. Moseley, U.S.V., and a few plaster casts and drawings. (2)

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(1) Much space relatively has been given to the early history of the Museum. Matters are mentioned for that time of a character that, for later years, are omitted. The early history of every institution, like the childhood of an eminent person, is always peculiarly interesting, and is often difficult to obtain.

(2) See a memorandum on page 3 of Dr. G. A. Otis' Check list of the Section of Human Anatomy of the Museum, 1876. There is also a memorandum made about 1885 by C. J. Myers, Chief Clerk of the Museum, saying that Dr. Otis had told him that even before the issuance of Circular No. 2 (<u>infra</u>), specimens were sent by Medical Officers in the field and hospitals and had accumulated on the shelves of the Surgeon General's Office, and that this accumulation suggested the issuance of the circular. This statement of Mr. Myers does not agree with that of Dr. Otis in the text, nor does it agree with that of Dr. Brinton, who was the first Curator, and was in a position to know the facts, while to Dr. Otis it was a matter of hearsay.

Dr. John H. Brinton, Brigade Surgeon, U.S. Vols., the first Curator of the Museum, in his address to the Army Medical School March 13, 1896 (see Journal American Medical Association,

March 28, 1896), said that "The beginning of the Museum in August, 1862 was very modest, consisting of three dried and varnished specimens placed on a little shelf above the inkstand on the desk of the recently appointed Curator."

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(3) There was a collection of specimens known as the collection of Thomas Lawson, Surgeon General, U.S.A. (1836-61), in which were three injected preparations and a skull. Two of the former are credited to Dr. Tripler, the other two specimens to Lawson. They are numbered 4, 5, 21 and 25 in the Anatomical Section of the Museum. It is probable that these, or a part of them, were among those mentioned by Drs. Otis and Brinton. The Museum records do not state when they were received. The statement by Dr. Otis in regard to Dr. Moseley is probably incorrect; the anatomical specimens contributed by him are recorded as having been received in 1865.

On May 19, Dr. J. J. Woodward, Asst. Surg., U.S.A., was assigned to duty in the Surgeon General's Office. General Hammond in less than one month after his appointment issued the following circular:

Surgeon General's Office, Washington, D.C.
May 21, 1862.

Circular No. 2.

As it is proposed to establish in Washington an Army Medical Museum, Medical Officers are directed diligently to collect and to forward to the Office of the Surgeon General all specimens of morbid anatomy, surgical or medical, which may be regarded as valuable; together with projectiles and foreign bodies removed; and such other matter as may prove of interest in the study of military medicine and surgery. These objects should be accompanied by short explanatory notes. Each specimen in the collection will have appended the name of the medical officer by whom it was prepared.

On June 4, Dr. Brinton was assigned to special duty in the Surgeon General's Office. The specimens so far collected were placed in his charge and he was appointed Curator. On June 9, the Surgeon General issued the following:

Surgeon General's Office, Washington, D.C.
June 9, 1862.

Circular No. 5.

It is intended to prepare for publication the Medical and Surgical History of the Rebellion.

The Medical portion of this work has been committed to Assistant Surgeon J. J. Woodward, United States Army, and the Surgical part to Brigade Surgeon John H. Brinton, United States Volunteers.

Not only, however, were these officers charged with the preparation of the History, as stated, but they were given charge of the Museum collections, and were also required to attend to many other important matters. From that time till now, the Army Medical Officers on duty at the Museum, besides their Museum work, have had a great variety of other duties to perform.

In 1878, Dr. Otis, in the Boston Medical and Surgical Journal, Vol. 98, p. 163, stated that the Museum was primarily instituted to collect and preserve specimens illustrating injuries and diseases that cause death and disability during war. In the preparation for the exhibit at the New Orleans Exposition of 1884-5, the following memorandum, presumably by Dr. J. S. Billings, U.S.A., was made:

"The principal object in creating the Army Medical Museum during the latter* part of the war was to preserve specimens

(error - should be <u>early</u>)

illustrative of the wounds and diseases which cause death and disability in war, and thereby facilitate the study of methods to diminish mortality and suffering among soldiers. Gradually the scope of the collection was extended to include all forms of injuries and diseases so as to form a general pathological Museum.

"Naturally, specimens of human and comparative anatomy were soon found not only useful but necessary additions to the original collection, and a cabinet of microscopical preparations of original research was accumulated; and it is now desired to make these sections as complete as possible.

"An interesting pathological cabinet collected chiefly by the labor of Professors Miller, Stone and Lincoln of the National Medical College, Washington, D.C., was obtained in exchange for a series of pictures and models for class demonstration that had been prepared when the project for the establishment of an Army Medical School had been contemplated. The cabinet of the late Dr. William Gibson of the University of Pennsylvania comprising over 800** specimens was purchased."

On July 24, a contract was made between Surgeon General Hammond and Frederick Schafhirt, for duty in the Army Medical Museum. Dr. Otis in a letter to the Surgeon General, July 23, 1870, stated that Dr. Schafhirt (1) began to collect specimens

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(1) Schafhirt was not a graduate in medicine, but was called "Doctor."

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in August, 1861, but this should be 1862. Dr. Woodward, in a letter of October 28, 1880, said that Fred. Schafhirt was enlisted as a Hospital Steward, U.S.A., December 31, 1862; was assigned to duty at the Army Medical Museum where he served until his term of enlistment expired, December 31, 1865. Then he was made Acting Assistant Surgeon, U.S.A., and again assigned to the Museum, serving until July 1, 1874, when his contract was annulled and he was appointed Anatomist and held this position

** The exact number was 529.

till he died, October 18, 1880. During this time his duty was to prepare bone specimens, and he did the work satisfactorily. Dr. Woodward, perhaps inadvertently, omitted to mention Schafhirt's service before December 31, 1862.

Dr. Brinton, in his address to the graduates of the Army Medical School, March 13, 1896 (supra) says:

"The preparer of the bones, Frederich Schafhirt, who under the unpretentious name of Hospital Steward, had been procured from the University of Pennsylvania, where he had long labored as an assistant to the immortal Leidy, was overworked. And here let me pay my tribute of respect to the memory of one who at this time did so much for the Museum, and without whom, perhaps, the collection had not taken shape."

The following is from the address of Dr. William Hunt, November 17, 1891, on Dr. Joseph Leidy, published by Collins, Philadelphia, 1892, p. 16:

"Two rooms on the second floor of the old University (of Pennsylvania) with a passageway leading to the Museum, the lecture and dissecting rooms, were the seat of Dr. Leidy's labors, on Ninth street. In a corner of the passageway near the window were Fred. Schafhirt's tables, where he dissected and prepared reptiles, birds and mammals, and ate Schweitzer and drank schnapps, and sung German sentimental and patriotic songs. In a room adjoining was Leidy, maybe dissecting a subject." (1)

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(1) The great value of Schafhirt's work for the Museum justifies the extensive notice given him.

On July 28, the Surgeon General sent a number of Medical Officers to various hospitals to obtain from the Surgeon in charge of each hospital such specimens of morbid anatomy (both medical and surgical) as had accumulated since the establishment of the hospital, or were in the possession of any of the medical

officers of the hospital, and to have them packed and forwarded to the Surgeon General's Office.

Dr. Brinton in his "Personal Memoirs", New York, 1914, p. 180, quotes the following:-

"Surgeon General's Office,
Washington, August 1, 1862.

"Sir:

You are hereby directed to collect and properly arrange in the 'Military Medical Museum' all specimens of morbid anatomy, both medical and surgical, which have accumulated since the commencement of the Rebellion in the various U.S. Hospitals, or which may have been retained by any of the Medical Officers of the Army. You will also take efficient measures for the procuring hereafter of all specimens of surgical and medical interest that shall be afforded in the practice of the different hospitals. Should any Medical Officer of the Army decline or neglect to furnish such preparations for the Museum you will report the name of such officer to this office."

Very respty. Yr. Obdt. Servt.

WILLIAM A. HAMMOND

Surgeon General.

"Dr. Brinton, Surgeon, U. S. Vols."

On page 181 of his "Memoirs", Dr. Brinton says further:

"The first idea of an 'Army Medical Museum' originated with Surgeon General Hammond, and was by him communicated to the Officers of the Army in Circular No. 2, which I have given (supra). I told him when I first saw him that I had collected a good many bone specimens in the West, some of which I had lost, and some of which I brought home (now in my collection of gunshot wounds of bone). The order of August 1 to me was the first step towards really putting this notion of an Army Museum into shape, and was a most welcome duty. My whole heart was in the Museum, and I felt that if the medical officers in the field, and those in charge of hospitals, could only be fairly interested, its growth would be rapid, and the future good of such a grand national cabinet, would be immense. By it the results of the surgery of this war would be preserved for all time, and the education of future generations of military surgeons would be greatly assisted.

"To help me in my work Hospital Steward Frederic Schafhirt and his son, Adolph, were assigned to duty with me. The elder Schafhirt was an admirable bone cleaner and working anatomist. He had for a long time worked at the University of Pennsylvania under Dr. Leidy (Dr. Joseph Leidy, Professor of Anatomy) and was an adept in preparing and mounting specimens for a Museum. We at once went to work. I obtained for him amputated arms and legs from the Washington hospitals, and afterwards from those in the neighborhood; these he cleaned, prepared and mounted, and very soon the first specimens, the initial preparations of our new Museum, were ready, and made their official appearance on top of my desk, and on the shelves put up for the purpose in my rooms in the Surgeon General's Office, at first down stairs, and afterwards in the second story room of the office on Pennsylvania Avenue, looking towards Riggs' Bank. This room I afterwards relinquished to Medical Inspector General Perley, and was moved with my Museum possessions into one or two of the small rooms of a second story back building on Pennsylvania Avenue, below the War Department, where quarters were assigned to Dr. Woodward and myself, then actually pushing on our medical and surgical histories of the war, and compiling our reports of sick and wounded, a work demanding the services of many clerks."

The first building named above was really a part of the former Riggs' Bank building, being the part above and back of that occupied by the Bank itself. A new building has since been erected. The second building named above was then known as 180 Pennsylvania Avenue, west of 17th Street, north side. The building is still standing, with a new number, 1719-21.

Dr. H. E. Brown, Asst. Surgeon, U. S. A., in his "The Medical Department of the U. S. Army", 1873, page 225, says that:

"Very soon after his appointment, Surgeon General Hammond saw the great advantage that would accrue to the cause of scientific medicine and surgery by rendering the enormous experience of the war available for future study. Hardly ever in the history of the world had such an opportunity been offered for the collection of statistics upon all points of military medicine, surgery and hygiene, and of obtaining specimens illustrative of pathological anatomy. It was therefore determined to commence such a collection in Washington, and the initiatory steps were

taken by the promulgation of the following Circular:" (namely, Circular No. 2, 1862, supra).

Dr. Charles J. Stille, in his History of the Sanitary Commission, 1866, page 449, says:

"He (Surgeon General Hammond) instituted at Washington an Army Medical Museum in which was collected and arranged a vast number of specimens from the different hospitals, illustrating the nature of the peculiar disorders to which soldiers are liable, and the character of the wounds which are inflicted by the new missiles of War."

On August 28, Dr. Brinton sent to Muzzy & Munroe of Philadelphia what appears to be the first order on record of the purchase of glass jars for mounting specimens for the Museum. They were to have round glass stoppers with glass hook, the neck of the jar and stopper to be ground; no flange at the base; the mouth of the jar to be of the greatest possible width. Brinton used the expression "Military Medical Museum."

From Brinton's "Memoirs", page 203, is quoted the following:

"Washington, D.C.
September 18, 1862.

"Sir:

You will proceed without delay to Frederick, Md., to superintend the selection (collection?) of specimens for the Pathological Museum connected with this office. All Medical Officers are hereby ordered to give you any aid in their power to further this object."

Very respectfully, yr. obt. Servt.
By order of the Surgeon General

(Signed) Jos. R. Smith
Surgeon, U.S.A.

Dr. Brinton, Surgeon of Volunteers, etc.

On October 15, in a Report of Medical Inspector R. D. Mussey to Medical Inspector General Perley, Medical Director Gilbert

is said to have stated to Inspector Mussey that Dr. R. B. Bontecou, when the (some hospital) was broken up, had retained from 200 to 300 pathological specimens, instead of turning them over, and it was believed that they had been sent to his house, as they had never been received at the Army Medical Museum. It was learned later that the specimens were sent to Dr. T. M. Markoe, N.Y. City, for on June 20, 1863, Dr. Brinton, in regard to pathological specimens sent by Dr. Bontecou to Dr. Markoe, said that Markoe objected to turning over the specimens to the Museum, claiming that they were collected prior to the order of the Surgeon General which established the Museum, and directed medical officers to preserve such specimens for the Museum. Brinton however held that Bontecou's sending the specimens to Markoe was a direct violation of the express and explicit orders of the Surgeon General. Eventually Dr. Bontecou contributed 101 specimens to the Museum, but none were ever received from Dr. Markoe.

On October 27, Brinton ordered more jars, this time from Hartell and Letchworth, Philadelphia.

Somewhere about this time, Dr. William Moss, who had been appointed Asst. Surgeon, U.S. Vols., October 4, 1862, was ordered to duty at the Museum. His name appears in the record December 4.

On December 11, Dr. W. W. Keen of Philadelphia, Acting Asst. Surgeon, U.S.A., who was on duty at the Military Hospital at Frederick, Md., was directed to collect specimens and forward them in barrels

to the Surgeon General's Office. He was authorized to buy whiskey for use as preservative.

Dr. Brinton went to Fredericksburg in December, 1862, after the battle. He says (Memoirs, page 214): "My duty at Fredericksburg at this time was to help in every way those who were caring for the wounded and at the same time to look after the interests of the Museum. Dr. Moss who was then Assistant Curator of the Museum had accompanied me, and was very busy gathering up specimens to be taken up to Washington for preparation and preservation..... On the afternoon of the 15th I encountered Dr. Moss, my assistant, bringing with him an immense number of surgical specimens, some of these in boxes w hich we sneaked over in the wagons; the remainder were carried in great bags on the backs of one or two very black negroes." (page 220).

"I returned to Washington about the 19th of December, and was immediately at my old work. Specimens were now accummulating at the Museum. Very soon after my arrival I sent Dr. Moss down to the Army for more. By this time the Surgeons generally were becoming interested in the Museum project and were taking pains to get and preserve what they could for the collection." (page 222).

On December 31, the contract of Dr. Schafhirt was annulled and he was enlisted as Hospital Steward, U.S.A.

The following was published January, 1863:

"Catalogue of the Army Medical Museum, Surgeon General's Office, January 1, 1863, 8 vo. pp.58, Washington, Government Printing Office."

It contained the following introductory letter by Dr. Brinton, the Curator, dated January 10, addressed to Surgeon General Hammond. The collection consisted of 985 surgical specimens, 106 medical, 133 missiles, and 125 miscellaneous; total, 1349;

"ARMY MEDICAL MUSEUM.
Surgeon General's Office,
Washington, D.C., January 10, 1863.

General: In obedience to your order of December 15, 1862, I have the honor to submit the following report of the condition

of the Army Medical Museum on January 1, 1863:

This Museum was established, in pursuance of your orders, in the month of August last. All of the contained specimens have been collected since that time, and their number is being daily augmented.

The collection at present consists of thirteen hundred and forty-nine objects. Of these, nine hundred and eighty-five are surgical specimens, one hundred and six are medical, and one hundred and thirty-three are missiles, which, for the most part, have been extracted from the body. This latter class includes round and conical bullets, shot, grape, canister, fragments of shell, arrows, arrow-heads, etc. Not the least interesting portion of the cabinet is a series of projectiles for small arms, field and heavy guns; and also a complete set of the bayonets now in use in our own and foreign services. For this valuable collection, prepared at the Washington arsenal, under the supervision of Lieut. Col. Geo. D. Ramsay, U.S.A., the Museum is indebted to the Ordnance Department of the Army.

Every object in the Museum has been appropriately and permanently mounted - the dried preparations on stands, and the wet ones in glass anatomical jars, of the most approved patterns, and constructed for the purpose. Every specimen bears a label, on which is inscribed its Catalogue number and the name and rank of the medical officer from whom received.

In the accompanying Catalogue - prepared by Assistant Surgeon William Moss, U.S.V., Assistant Curator of the collection- the Museum number of every object is given, and its character is briefly described. The name of the medical officer contributing it will be found on the same line in a separate column.

As the value of all pathological preparations depends, to a great extent, upon the completeness of their history, strenuous efforts have been made to procure an accurate surgical and medical account of every case from which a specimen has been taken. I regret to state that, in many instances, the desired success has not been obtained. In order that this evil may, as far as possible, be remedied, the number of every specimen in the Catalogue for which a sufficient history has been received has been marked with an asterisk. For all others, neither history nor description have as yet been furnished. It is hoped that medical officers, recognising the objects contributed by them, will exert themselves at once to remedy this deficiency.

In presenting to you, General, this catalogue, you will please remember that it is offered simply as a numerical list of the objects in the Army Medical Museum. No attempt has as yet been made to classify the various injuries, nor has any description of the preparations been entered upon. Such a work must be deferred for the future. It will then be found to demand volumes.

The labor of the present hour is simply to collect and to preserve-the study must be made hereafter.

I have the honor to be,

Very respectfully, your obedient servant,

JOHN H. BRINTON,

Surgeon, U.S.V., and Curator Army Medical Museum.

Brigadier General WILLIAM A. HAMMOND,

Surgeon General, U. S. A."

SUGGESTIONS

To The

MEDICAL OFFICERS OF THE ARMY,

as to the

PREPARATION AND FORWARDING OF SPECIMENS TO THE ARMY MEDICAL MUSEUM, SURGEON GENERAL'S OFFICE, WASHINGTON, D.C.

. . . . . .

The objects which the Surgeon General desires to collect for the Museum may be thus enumerated:

1. Specimens illustrative of surgical injuries and affections; such as-

Fractures, compound and simple-fractures of the cranium.

Excised portions of bone.

Diseased bones and joints.

Exfoliations, especially those occurring in stumps.

Specimens illustrative of the structure of stumps, (obliterated arteries, bulbous nerves, rounded bones, etc.)

Integumental wounds of entrance and of exit, from both the round and conoidal ball.

Wounds of vessels and nerves.

Vessels obtained subsequent to ligation and to secondary hemorrhage.

Wounded viscera.

Photographic representations of extraordinary injuries, portraying the results of injuries, operations, or peculiar amputations.

Models of novel surgical appliances, and photographic views of new plans of dressing.

2. Specimens of Disease.

Specimens illustrating morbid processes of every kind; especial consideration being paid, however, to the degree in which the morbid condition will probably be demonstrable in the preparation when preserved. All unnecessary or extraneous appendages to be dissected away. In addition to specimens of diseased organs, malformations, parasites, concretions, and

calculi are desirable. Microscopical specimens should, for uniformity sake, be mounted on slips of glass 3 inches by 1 inch.

It is not intended to impose on medical officers the labor of dissecting and preparing the specimens they may contribute to the Museum. This will be done under the superintendence of the Curator.

In forwarding such pathological objects as compound fractures, bony specimens, and wet preparations generally, obtained after amputation, operation, or cadaveric examination, all unnecessary soft parts should first be roughly removed. Every specimen should then be wrapped separately in a cloth, so as to preserve all spicula and fragments. A small block of wood should be attached, with the number of the specimen and the name of the medical officer sending it inscribed, in lead pencil; or a strip of sheet-lead, properly marked with the point of an awl, may be employed for this purpose. In either case, the inscription will be uninjured by the contact of fluids. The preparation should be then immersed in diluted alcohol or whiskey, contained in a keg or small cask. When a sufficient number of objects shall have accumulated, the cask should be forwarded directly to the Surgeon General's Office. The expenses of expressage will be defrayed in Washington. The receipt of the keg or package will be duly acknowledged by the Curator of the Museum.

In every instance, a corresponding list or history of the cases should, at the same time, be forwarded to this office by mail. In this list the number and nature of every specimen should be clearly specified, and, when possible, its history should be given. The numbers attached to the specimens themselves, and the numbers in the list forwarded, should always correspond, and should be accompanied by the name and rank of the medical officer by whom sent. Every specimen will be duly credited in the Catalogue to the medical officer contributing it.

Much confusion has hitherto arisen from the fact that considerable periods of time have often been allowed to elapse between the sending of the specimen and the forwarding of its history. In many cases no history whatever has been received. It is hoped that it is not yet too late to remedy this deficiency.

If any errors exist in the present Catalogue, they will be corrected on due notification being sent to the Curator.

. . . . . .

The following medical officers have been authorized by the Surgeon General to collect and forward specimens to the Museum from the cities and localities in which they are respectively stationed:

Surgeon Lavington Quick, U.S.V., Baltimore.
Acting Assistant Surgeon Edward Hartshorne, U.S.A., Philadelphia.
Acting Assistant Surgeon George Shrady, U.S.A., New York.
Surgeon M. Goldsmith, U.S.V., Louisville.
Surgeon J. F. Carpenter, U.S.V., Cincinnati.
Assistant Surgeon F. L. Town, U.S.A., Nashville.
Surgeon John S. Hodgen, U.S.V., St. Louis.
Surgeon H. S. Hewit, U.S.V., Army of the Mississippi.

Dr. Brinton in his "Memoirs", page 188, says of the catalogue of 1863 that "its real object was to give credit to Medical Officers contributing to the Museum. In fact it did a great deal more; large numbers of preparations had accumulated in the Museum, the donors of which were not known. Very many of the specimens I had brought there from the battle-fields, collected by myself. These I put in the first catalogue, assigning them to such medical officers as I could call to mind, and especially to those whom I knew to be lukewarm in Museum interests. The effect of the procedure was good."

Again (page 187) he says that the publication of the first catalogue in January, 1863, had a good effect as also did the opening of the Museum to the public. (1) He adds: "Many and many a putrid heap have I dug out of the trenches where they

(1) The Museum was opened to the public about September, 1863.

had been buried." On page 185 he says that the bones of the parts removed by amputation were usually partly cleaned and then with a wooden tag and carved number attached were packed in a keg containing alcohol, whiskey or sometimes salt and water. When a number of specimens were thus ready the keg was sent to the Museum where the preparation was completed and the specimens placed on

the shelves. In the meantime the histories were sent to the Surgeon General.

On January 27, 1863, by order of Dr. Brinton, five barrels of whiskey were furnished to Dr. Keen at Frederick, Maryland, by J. B. Eppler, of Frederick, for preservation of specimens.

On February 26, Dr. Brinton wrote to Surgeon C. H. Laub, U.S.A., Medical Director, Department of Tennessee, asking that in case of action he would detail some young "sawbones" or a medical cadet to collect amputated limbs, &c. for the Museum; thrown into a barrel with a little whiskey and forwarded to the Surgeon General's Office, they would form a valuable contribution to the Museum.

On February 27 a lot of drugs were donated to the Museum by the chemists, Wyeth & Bro., Philadelphia.

On March 28, Dr. Robert Murray, Surgeon, U.S.A., and Medical Purveyor at Philadelphia, sent two barrels of alcohol to the Museum,

On April 27, A. J. Schafhirt, Hospital Steward, U.S.A., then on duty at the Museum, as stated above, was ordered to report for special duty to B. A. Vanderkieft, Surgeon, U.S. Vols., at the General Hospital, Smoketown, Maryland, and after performing the required duty to return to the Museum. The order was signed by Joseph Smith, Surgeon, U.S.A. for the Surgeon General.

Brinton in his "Memoirs", page 231, says:

"So on the 5th of May I left with my hospital stewards. Stauch was a German water-color painter. He had enlisted, tempted by the bounty, or to avoid the draft, and had immediately been detailed on this special duty as water colorist at the Surgeon General's Office. Schafhirt was the bone artist,

the son of Schafhirt who prepared the specimens at the Museum, and who had originally been an assistant or workman in the dissecting room of the University of Pennsylvania. Stauch's duty was to paint sketches of such wounds and injuries as I might indicate, while Schafhirt was to assist me in the collection of specimens for the Army Museum, that is, to bring away the bones fractured by gunshot or cannon projectiles, mostly obtained from the amputated limbs, which accumulated at the operating tables, in the various hospitals, division, corps, or field, which I might visit."

"At first I had experienced much difficulty in obtaining the necessary permission from surgeons, but by this time they had become interested, and were anxious to furnish all they could to the national collection. As the preparations were finished, or rather the limbs, etc., I had them roughly cleaned (most often I was obliged to do this myself) and then I had them placed in barrels with liquor and so sent or took them with me to Washington."

On May 21, the following order was issued:

Surgeon General's Office,
Washington, D.C., May 21, 1863.

Sir:

You will proceed immediately to the Army of the Potomac and visit the different corps hospitals, on special duty connected with the collection of pathological specimens. Having accomplished this you will return to this city and resume your present duties.

By order of the Surgeon General.
(Signed) Joseph R. Smith,
Surgeon, U.S.A.

To Surg. J. H. Brinton, U.S.V.,
Washington, D.C.

The Museum collection having outgrown the space allotted to it at 180 Pennsylvania Avenue, it became necessary to secure more suitable quarters, and the Corcoran Schoolhouse was selected. This building was situated at what is now 1325 H St., N.W.; the old building was torn down some years since and the present one erected, which is used by the George Washington Medical School. The following orders were issued, respectively one by the Commandant of the

Military District, the other by the Surgeon General:

Special Order
No. 116.

Hdqrs. Milt. Dist. of Washington.
Washington, D.C., May 22, 1863.

(Extract) II.

The school house situated on H Street North, between 13th & 14th Streets, owned by Mr. Corcoran, is hereby taken possession of by the Government of the United States, and turned over to the Medical Department for the use of the Army Medical Museum.

By command of Major General Hitchcock.

John J. Sherburne,
Asst. Adjt. General.

To Surgeon General Hammond.....

Surgeon General's Office,
Washington City, June 1, 1863.

Sir:

The building known as Corcoran's school house near (opposite) Dr. Gurley's Church, together with its outbuildings thereto, having been turned over to this Department by order of the Secretary of War, you will take charge thereof, and make such alterations and repairs as may be necessary to fit it for the purpose of the Army Medical Museum. You will however avoid all useless alterations or expenses.

Very respectfully, yr. obdt. Servt.

JOSEPH R. SMITH
Acting Surgeon General.

To Surgeon J. H. Brinton
Surgeon General's Office,
Washington, D.C.

On June 2, Dr. Brinton wrote to a Mr. Vollmer, Philadelphia, in regard to making upright cases for the Museum, suggesting that they be made of black walnut unvarnished. Apparently no order was given, because walnut cases were not sent. On June 9, however, Henry Wingate, of Washington, was contracted with to make sixteen cases.

cases.

Dr. Brinton went to Gettysburg after the battle, partly to secure specimens for the Museum. He says ("Memoirs," page 246) that he was able to gather much for the Museum, and for the most part the medical officers were anxious to further him in his endeavors to carry out his Washington instructions.

Surgeon General Hammond at this time had been detailed for other duty, although still holding the rank of Surgeon General.

On page 245 of his Memoirs Brinton says:

"One of my men at Gettysburg took from the body of a Southern soldier a breastplate of soft steel in two halves intended to be worn under the coat or vest. One ball had struck it and indented or bent it without perforation. Another, if I remember rightly, had passed through in the region of the liver causing the death of the wearer. I think the breastplate bore the imprint 'Ames Manufacturing Company.' This cuirass was placed in the Army Medical Museum and I suppose is there now. It was the only example of offensive armor I met with during the war." (See specimen 4654, Path. Section; the right half, showing a hole that might correspond to the "region of the liver." Also on the lower edge another smaller hole. The whereabouts of the other half is not known.)

Brinton, in his address to the Army Medical School graduates, says that in July, 1863, an amputated leg was received at the Museum, in an extemporized coffin on which was tacked a visiting card "with the compliments of Major General D. E. S. (Sickles) U. S. Volunteers." (The bones were prepared, show the shot fracture, and are numbered 1335 Path. Section.)

General Hammond in his Report for 1862-3, to the Secretary of War, says:

"Considerable progress has been made in the establishment of an Army Medical Museum. The advantages to the service and to science from such an institution cannot be overestimated. I respectfully recommend that a small annual appropriation be made for its benefit."

On July 7, the Corcoran school house, which Brinton (Memoirs, page 182) says had been previously fitted up for a picture gallery, was turned over to the Medical Department by the military authorities. He wrote to the Trustees of the Public School informing them that the building had been turned over to the Medical Department of the Army and asked them to have the furniture belonging to the school removed as soon as possible.

On August 4, Brinton bought a one tenth Tolles lens, for the Museum.

On August 11, a half barrel of specimens was sent to the Museum from Louisville, Kentucky.

The following letter was addressed by Dr. Brinton, August 4, to Col. J. K. Barnes, Medical Inspector General, and Acting Surgeon General, U.S.A.,

Colonel:

In reply to your inquiries relative to the Army Medical Museum I have the honor to state: That the formation of the collection now known as the Army Medical Museum was commenced in the Fall (should be Summer) of 1862, when the corporation of the medical officers of the Army was invited to this end. The greatest interest has since then been evinced by the medical staff in the undertaking, and pathological specimens have been continuously forwarded to the Museum from every quarter. On the first of January the cabinet had already obtained considerable size, and at the present moment it is nearly double what it then was. The number of specimens all told is now probably not less than 3500. The collection of gunshot injuries alone is the largest in the world, exceeding in number and value that of the British Government at Netley, (formerly at Fort Pitt, Chatham), and far surpassing the French Museum at Val-de-Grace, founded by Baron Larrey.

"It is unnecessary for me, Colonel, to urge upon you the value of our National Medical Museum. Its claims to usefulness are recognized by the civil profession throughout the country and it is by them weekly and almost daily considered. The cabinet as it stands is not a mere Museum of curiosities. It is a collection which teaches. It is practical and has already powerfully influenced for the better the treatment of the wounded soldier. In confirmation of this assertion I would simply recall to your mind the lessons to be deduced from the study of the specimens on its shelves, of injuries of the joints from conoidal balls; a class of injuries previously almost unknown and the treatment of which, at the commencement of the war, was unsettled.

"During the last session a small appropriation ($5000.00) was made for the support of the Museum. At that time the collection had exceeded the limits of the room appropriated for its accommodation, and the specimens had commenced to suffer from dust. I was therefore instructed to find and rent a proper building for their reception. After long search, I could find none suitable save the building in H Street owned by Mr. Corcoran. I proposed to rent it from his agent, Mr. Hyde, who after communicating with the owner informed me that Mr. Corcoran would be willing to rent the building to the Museum for $1000 per annum, he agreeing to put it in repair. This proposition was accepted on the part of the Museum, and on the 16th of May, last, permission was requested by the Surgeon General from the Secretary of War, to rent the building, the rent to be paid out of the Museum appropriation. The renting of the premises was however forbidden by the Secretary, who on the 21st of May ordered the building in question to be turned over by the Military Governor to the Medical Department for the purposes specified, directing moreover that 'no rent will be paid for the building.'

"The public school at the time occupying the hall was in nowise interfered with and the real possession of the house was not obtained until after the close of the school session. Since that time the building has been put in complete order and the cases erected at a cost to the Museum of nearly $2000. It is now ready for the reception of the collection. The proposed arrangements are such as will open the collection to the study of every Surgeon, both military and civil. Thus only can a true knowledge of the treatment of wounds produced by modern projectiles be diffused. In conclusion, Colonel, I would draw your attention to the serious detriment which would accrue to the Museum and to the great pecuniary loss it would sustain should any change in the proposed plan be ordered. I know of no other suitable building for the purposes of the Museum, and even should one be found, the fund at command would be utterly insufficient to make a second time the alterations and repairs which would be absolutely necessary."

- Signed by J. H. Brinton, as Surgeon of Vols., and Curator of the Museum.

On August 25 and again on September 1, Brinton bought some things for the Museum from Ernest Schafhirt, another son of Dr. Schafhirt. Whether at this time Ernest Schafhirt was connected with the Museum does not appear.

On August 25 also the sixteen cases made by Wingate were paid for, and the same date Brinton requested an ambulance to remove the Museum collection to its new quarters.

On August 27, cans in boxes with padlock and key were furnished to hospitals for collection of specimens; whiskey being the preservative.

The following is from Brinton's "Memoirs", page 185:

"War Department, Washington City
September 1, 1863.

Copy

Col. J. K. Barnes
Medical Inspector General
Washington, D.C.

"The Secretary of War authorizes the transfer of the specimens from the room of the Surgeon General's Office to the Museum newly selected.

Very respectfully, yr. Obdt. Servt.
(Signed) Jas. A. Hardie
Asst. Adjt. Genl."

"From the above it will be seen that the Museum specimens remained at the office of the Surgeon General under my immediate care (except Medical specimens proper, under Asst. Surgeon Woodward's care) from the inception of the Museum. I removed them to the Corcoran building, and was responsible for them and for the growth of the Museum during my stay in Washington.

"Schafhirt and his son, who prepared the specimens, were borne on the Surgeon General's roster of employees as hospital stewards, while soldiers and men from the Invalid Corps were detached as servants and additional helpers and orderlies. In the meantime, with the funds appropriated, I was enabled, under the instructions of the Surgeon General, to fit up good cases for the

rapidly growing collection. The doors locked with bronze hands which slid bolts at top and bottom, modeled after the hands in the cases of my home office..... These cases were gradually extended until, before I left Washington in October, 1864, galleries had been erected and the room or hall completely filled.

"One of the first additions to the Museum was an Assistant Curator, I being then also officially Curator, who should superintend the work on the specimens, and the recording of their histories, which was diligently done by clerks appointed from the Surgeon General's Office. Dr. Wm. Moss who had entered the Corps of Surgeons of Volunteers, was the first Assistant Curator, and on his resignation from the Army, after his marriage, he was succeeded by my old student, Dr. Brinton Stone, who had become an Assistant Surgeon."

For a full description of how specimens were obtained and other matters connected with the Museum see Brinton's Memoirs, pp. 185 to 194.

On September 11, Brinton made requisition for articles for the Museum, including two iron bedsteads, two mattresses and four blankets. What these were for does not appear. There was no watchman at that time.

On September 15, in a letter to Asst. Surgeon General C. H. Crane, Brinton reports that the Museum was then located in a building known formerly as the Corcoran Schoolhouse and was under his immediate superintendence. The specimens, the largest collection of gunshot wounds in the world, admirably mounted. A thorough system had been established for collecting specimens from the different armies and hospitals. One Hospital Steward (Schafhirt) had been detailed for duty in preparing the specimens. Brinton was daily expecting another one. One Hospital Steward acted as copying clerk for the histories of the specimens. Brinton asked for a

Medical Officer who could undertake partial care of the Museum, assuming the duties then discharged by Asst. Surgeon Moss, U.S.V., who intended to resign, but had deferred his resignation until the necessary arrangement of the collection in the new building.

On September 15, a series of microscopical slides was bought from Prof. Hyrtl of Vienna.

On September 19, Dr. Moss resigned from the Army, and his connection with the Museum ended.

On September 24, it is stated that the jars bought of Muzzy & Munroe of Philadelphia had been made in Boston and were shipped directly from the factory to the Museum.

The following letter was addressed to Acting Surgeon General Barnes: September 24, 1863

Sir:

The undersigned medical officers now on duty in this city and some of them connected with the Army Medical Museum, wishing to make that institution at once practically useful, request permission to deliver a course of lectures on military medicine and surgery in the hall of the Museum.

The large number of medical cadets and junior medical officers on duty in the various hospitals of this district at once suggests the advantage of such a course.

The lectures, if delivered in the evening, as proposed, would in no way interfere with the official duties of any one concerned. The subscribers have all formerly had more or less experience in lecturing on medical subjects and they therefore entertain the hope that their efforts would not be without beneficial effect for those especially who aspire to the position of medical officers in either the regular or volunteer service.

These lectures of course will be delivered free, and with the facilities offered by the Museum would not be a source of any expense whatever to the Government.

The names signed are J. H. Brinton, Surgeon, U.S.V., R. Bartholow, Asst. Surgeon, U.S.A., J. J. Woodward, Asst. Surgeon,

U.S.A., and D. W. Bliss, Surgeon, U.S.V.

Brinton (Memoirs, pages 258-259) says that he fitted up the room beneath the main hall of the Museum in the Corcoran building for teaching purposes, that is, for an Army Medical School.

"There was a charming lecture room with sloping seats, a couple of convenient retiring rooms or laboratories, a good stage to speak from and a well constructed lecture and revolving table. The illustrations in lavish profusion were in the main hall above and everything was ready for the first military-medical course of the United States Army for the session 1863-64. It wanted but the authorization of the scheme by the Secretary of War and the appointment of the lecturers or professors. These had in truth been selected. There was Coolidge of the regular army, an old officer, to teach the customs of the service and military-medical ethics. Surgeon Sidell (should be Lidell) U.S.V., as a teacher of chemical surgery (probably clinical surgery), Asst. Surgeon Wm. Thomson, since famous as an oculist; Asst. Surgeon J. J. Woodward, U.S.A., on military medicine; Robert Bartholow of world wide reputation, and several others whose names have escaped me. Gunshot injuries had been assigned to me, and even my introductory remarks had been jotted down."

As Curator of the Museum, Brinton reported to Barnes the forward state of preparation.

"The Secretary of War had to be informed. He was told by General Barnes and said he would decide the matter and speak of it tomorrow. On the morrow about nine o'clock on his drive from his home to the War Office, he stopped at the Museum building, descended from his carriage, ran hastily through the Museum rooms, stamped his foot, growled 'Ugh', drove to his office, sent for Acting Surgeon General Barnes, and said sharply to him: 'Are these lectures to be given in the evenings?' To an affirmative reply he growled: 'They will go to the theatre and neglect their duties. It shan't be.' And this was the end of a favorite plan for doing some good for the Medical Corps of the Army and for disseminating a more correct and general knowledge of Military Medicine and Surgery."

On the back of a duplicate letter appears the following program:

1863-64	7 p.m.	8 p.m.
Monday	Brinton	Bartholow
Tuesday	Woodward	Hamlin (1)
Wednesday	Brinton	Bartholow
Thursday	Woodward	Hamlin
Friday	Bliss	

(1) This must have been A. C. Hamlin, Surg. U.S. Vols. See also Brinton's address to the graduates of the Army Medical School March 13, 1896. Jour. Amer. Med. Assn., March 28, 1896, page 600.

On October 1, Brinton paid Queen and Co., Philadelphia, for articles bought, including a cabinet for microscopical slides.

On October 21, Brinton paid Joseph Whitney for "night work." This work consisted in removing at night the contents of the "cesspool" used by the attachees of the Museum.

On October 28, Dr. Ralph S. L. Walsh, Acting Asst. Surgeon, was assigned to duty at the Museum. In a letter to Dr. Lamb, published in the History of the Medical Society of the District of Columbia, 1909, page 270, Dr. Walsh said:

"I may mention that during this period I was also placed in immediate charge of the Army Medical Museum, then located on H Street between 13th and 14th Streets. Said Museum, when I assumed charge, consisted of two large rooms filled with empty cases, a back building in which was stored a number of dry and moist specimens in barrels and alcohol, to be mounted by Mr. Schafhirt, who was employed for that purpose. There was also a mass of written histories, numbered to correspond with the specimens. Under my supervision the specimens were mounted, numbered and placed in the cases, and the histories condensed and recorded..... I mention as a possibly interesting fact that most of the alcohol used for the preservation of the moist specimens was procured by distillation of contraband liquors seized on the Long Bridge. These liquors ran from blackberry wine to straight alcohol, and were packed in many peculiar vessels. Frequently women were arrested with belts under their skirts to which were fastened tin sectional cans holding from a quart to a gallon, and in a number of cases false breasts, each holding a quart or more."

In view of the above statement of his services, by Dr. Walsh, presuming it to be correct, it is impossible to understand why he is not mentioned by Dr. Brinton, who mentions by name even the Hospital Stewards who did duty at the Museum. It will be noted that Dr. Moss had resigned September 19, and apparently there was no Medical Officer connected with the Museum from that time until the appointment of Brinton Stone, in 1864, except Drs. Brinton, Woodward and Walsh; and Brinton and Woodward had their offices at 180 Pennsylvania Avenue. (See Brinton's letter of September 15).

On November 14, in an order for glass jars it was provided that the stoppers should be hollow and the hook fastened to the top of the arch so as to gain room.

On November 20, Brinton wrote to T. W. Evans & Co., Pittsburg, asking if they could make the kind of jars wanted.

On November 23 it was ordered that the liquor confiscated and turned over to the Medical Purveyor of the Army should be turned over by him to the "National" Medical Museum.

The following circular was issued November 25:

Surgeon General's Office, Washington, D.C.
Circular No. 26. November 25, 1863.

The attention of Medical Officers in charge of U.S.A. General Hospitals is invited to the propriety of preparing and depositing in the Army Medical Museum illustrations of the result of surgical operations. These illustrations can in many instances be conveniently obtained by means of plaster casts which are readily made without subjecting the patient to the slightest inconvenience.

[illegible]

[illegible] poisonous [illegible] Blood, [illegible] Body of and Blood [illegible] Priesthood [illegible]

[illegible]

November 14, in an order for glass [illegible] provided [illegible] copyright [illegible] and the book [illegible] to the [illegible] room.

[illegible] November 20, Brother [illegible] to [illegible] the [illegible] [illegible]

[illegible] modified [illegible] over to the [illegible] [illegible] [illegible] [illegible] [illegible]

[illegible]

[illegible]

The casts most desired are those of stumps of amputations of every variety, and models of limbs upon which excisions may have been performed.

In selecting proper subjects for representation it would be well to choose not only those cases in which the results have been favorable but also those in which they have been unfavorable. In a collection like the National Museum truthful representations of both good and bad results are alike instructive and valuable for future reference and study.

These casts when made should be forwarded to the Army Medical Museum by express. The expressage will be paid in Washington. All preparations should be accompanied by proper histories with the name, rank and station of the contributor, who will be duly credited in the Museum catalogue.

On December 27 a box of pathological specimens sent from Vicksburg, Mississippi to the Surgeon General for the Museum, was received. It was addressed to Surgeon General Hammond.

Sometime in the winter of 1863-64 a Russian fleet visited the United States, and for awhile was anchored at Alexandria, Virginia, which seemed to be as far up the river as it could come. Dr. L. Holst, one of the surgeons of the fleet, visited the Museum. He published an account of his visit in Med. probav. k. morsk. sborniku, St. Peterb., 1865, V. page 49, abstracted and translated in the Wurzburg med. schr. 1865, VI, pages 285 to 318. He was especially interested in the specimens of shot fracture and their sequelae. He did not think that the wet specimens were of much value, because the swelling, injection and color had been lost by the immersion in alcohol. The illustrations in preparation for the Medical and Surgical History of the War were, he thought, very natural looking. The microscopic slides were valuable. The Indian weapons were not the least interesting.

Besides the catalogue above mentioned, the following publications appeared in 1863, based more or less on the study of specimens in the Museum; all of them by Dr. Woodward:

"Hospital gangrens" (letter to Prof. Detmold), Amer. Med. Times, 1863, VI, 179.

"The Hospital Steward's Manual." Philadelphia, J.B. Lippincott & Co., 1863.

"Outlines of the chief camp diseases of the United States armies as observed during the present War." Philadelphia, J.B. Lippincott & Co., 1863.

In 1864, Dr. Brinton asked Acting Surgeon General Barnes to appoint Dr. Brinton Stone, Asst. Surgeon, U.S.A., to duty in the Museum, in place of Dr. Moss resigned, stating that Dr. Stone's knowledge of anatomical manipulations and his experience in the preparation of morbid specimens peculiarly fitted him for the position.

On January 18, jars were bought from T. A. Evans & Co., Pittsburg.

On January 24, Dr. B. F. Craig, Acting Asst. Surgeon, was assigned to duty in the chemical laboratory of the Surgeon General's Office.

On February 4, Dr. Woodward asked that Hospital Steward A. Schafhirt, then on duty at the Seminary General Hospital, Georgetown, be ordered to the Museum to take charge of the collection and preservation of medical specimens. (Apparently A. Schafhirt had been temporarily detailed from the Museum to the Hospital.)

On February 9, a Department of Surgical Records had been formed under charge of Dr. Brinton.

In February, an order was given to Muzzy & Munroe for jars. The jars to be of the best pure glass, with ground stoppers, (ground extra with emery), to have glass knobs as in pattern. Each stopper with a hook, the hook attached to gain room for suspension of specimen. Wide mouth. For jars too large for stoppers, the top edge should be ground level for a plate of glass or lead.

On February 10, Dr. Brinton Stone, Asst. Surgeon, U.S.A., was appointed Assistant Curator at the Museum. Dr. J.H. Porter, Acting Asst. Surgeon, was also assigned to duty at the Museum.

On March 7, Dr. John Stearns, Acting Asst. Surgeon, was assigned to duty in the Surgeon General's Office, and eventually as an assistant to Dr. Otis, at the Museum.

On March 25, Dr. Ralph Walsh was relieved from duty at the Museum.

On April 13, Dr. Edward Curtis, Asst. Surgeon, U.S.A., was assigned to duty at the Museum as assistant to Dr. Woodward.

Dr. Woodward, in a letter to Rudolf Virchow, May 14, says in regard to the Microscopical Section of the Museum, that, at first, except for what he himself did, which was but little because he had but little time, there was no one available who had enough experience in micro-pathological research. But at length he found a young man, Asst. Surgeon Edward Curtis, U.S.A., who had some little preliminary knowledge as a microscopist, and who, working under Woodward's supervision, had become capable of independent investigation. He was patient and dextrous. So far,

however, his work was mainly in normal anatomy. Woodward wanted to buy or have donated microscopical slides of normal and pathological anatomy, and wanted Virchow to interest himself in Germany to secure such slides.

Woodward stated briefly the methods in use at the Museum in making microscopical preparations. There was a limited group of cases in which boiled preparations, after soaking in turpentine, were mounted in balsam. He had used a varnish for cells of Brunswick black mixed with caoutshouc dissolved in benzols; the object of the caoutchouc was to prevent cracking. The stickiness of such a preparation was overcome by applying two coats of black sealing-wax varnish as a finish. One trouble was to get a preservative fluid that did not attack the varnish; especially specimens rendered transparent with acetic acid or otherwise, where it was necessary that the transparency should not be affected by the preservative fluid.

On May 29 Dr. Brinton Stone was relieved from duty at the Museum.

On June 18, Dr. Schafhirt and his two sons, Adolph and Ernest were all on duty at the Museum.

On June 24, a Circular Letter from the Surgeon General's Office, provided that:

"Medical Officers in charge of hospitals are directed to diligently collect and preserve for the Army Medical Museum, all pathological surgical specimens which may occur in the hospitals under their charge.

"The objects which it is desired to collect for the Museum may be thus enumerated: Fractures, common and simple, fractures of the cranium. Excised portions of bone. Diseased bones and joints. Exfoliations, especially those occurring in stumps. Specimens illustrative of the structure of stumps (obliterated arteries, bulbous nerves, rounded bones &c.). Integumental wounds of entrance and of exit from both round and conoidal balls. Wounds of vessels and nerves. Vessels obtained subsequent to ligation, and to secondary hemorrhage. Wounded viscera. Photographic representations of extraordinary injuries portraying the results of wounds, operations or peculiar amputations. Models of novel surgical appliances and photographic views of new plans of dressing. Plaster casts of stumps and amputations and models of limbs on which excision may have been performed.

"It is not intended to impose on medical officers the labor of dissecting and preparing the specimens they may contribute to the Museum. This will be done under the superintendence of the Curator.

"In forwarding such pathological objects as compound fractures, bony specimens and wet preparations generally obtained after amputation operation or cadaveric examination, all unnecessary soft parts should first be roughly removed. Every specimen should then be wrapped separately in a cloth, so as to preserve all spicula and fragments. A small block of wood should be attached, with the name of the patient, the number of the specimen and the name of the medical officer sending it, in pencil. The inscription will be uninjured by the contact of fluids. The preparation should be then immersed in diluted alcohol or whiskey contained in a keg or small cask. When a sufficient number of objects shall have accumulated, the cask should be forwarded directly to the Surgeon General's Office. The expenses of expressage will be defrayed in Washington. The receipt of the keg or package will be duly acknowledged by the Curator of the Museum.

"In every instance a corresponding list or history of the cases should at the same time be forwarded to this office. In this list the number and nature of every specimen should be clearly specified and when possible its history should be given. The numbers attached to the specimens themselves and the numbers on the list forwarded should always correspond, and should be accompanied by the name and rank of the medical officer by whom sent. Every specimen will be duly credited in the Catalogue to the medical officer contributing it.

(Signed) J. K. Barnes,
Acting Surgeon General."

On July 22, Dr. George A. Otis, Asst. Surgeon, U.S. Vols. was ordered to duty in the Surgeon General's Office, and assigned

as assistant to Dr. Brinton.

On July 23, a barrel of whiskey was ordered to be sent to Dr. R. F. Weir, Asst. Surgeon, U.S.A., at the General Hospital, Frederick, Maryland, for specimens.

On August 20, Surgeon General Hammond was dismissed from the Army. (1)

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(1) He was afterwards restored and retired. It is an interesting fact that Secretary of War Stanton (was a Pennsylvania) and Drs. Hammond, Barnes, Brinton and Woodward were all Philadelphians.

Brinton, "Memoirs", page 284, says that during July and August, 1864, he made one or two trips to New York and Philadelphia on business connected with the Art Department of the Museum. In the latter part of the summer, a Photographic Bureau was added to the Museum and he had to see to getting the outfit.

Brinton says also, page 285, that he had secured two artists at an earlier date; A. Pohlers, who had been on topographical duty in the War Department and who made the maps used in the Medical and Surgical History of the War. Another man, E. Stauch, went on duty in the latter part of 1862 or early in 1863. He went with Brinton several times to the Army of the Potomac and also to local hospitals to make sketches and pictures of hospital gangrene and other cases; he worked in both water and oil colors.

On September 20, Dr. Porter was relieved from duty at the Museum.

On September 29, Dr. Brinton was relieved from duty in the Surgeon General's Office, and transferred to Louisville, Ky. Brinton says, "Memoirs", page 307, that Asst. Surg. General Crane told him that at the Surgeon General's Office they were satisfied with him.

On October 3, the Surgical and Photographic Sections of the Museum were placed under Dr. Otis. The Medical and Microscopical Sections were renewedly placed under charge of Dr. Woodward, October 6.

On October 8, Dr. Otis signed his first letter as Curator.

On November 4, the Museum contained 3500 surgical specimens, 500 medical, 150 plaster casts and missiles, 100 drawings and paintings and 1100 microscopical slides.

On November 11, Dr. Woodward ordered the necessary apparatus from Zentmayer, Philadelphia, for microphotographic work.

On November 25, Dr. Otis asked that the building on the grounds that had been used as a stable, be fitted up as a workshop.

The order of October 3, 1864, to Brinton from the Surgeon General, signed by Asst. Surgeon General Crane, U.S.A., says:

"Surgeon George A. Otis, U.S. Vols. will relieve you from the charge of the Department of this office which you now occupy and also from the duties of the Curator of the Army Medical Museum. You will transfer to Surgeon Otis all official books, papers, records, funds and property of any description under your charge and he will receipt to you for those articles for which you are responsible. After turning over your property &c. you will proceed without delay to Louisville, Kentucky, and report to Asst. Surgeon General Wood in compliance with Special Orders, No. 324, dated War Department September 29, 1864."

Brinton, page 314, says that at his request, Faber, one of the Museum artists, made a pen and ink sketch of him (Brinton) as St. Denis, leaving the Museum, head in hand, for the region of the setting sun, with the bloody headman's sword, the unfinished work of the Surgical History of the War, etc. Dr. Otis afterwards wrote to Brinton that Faber, by request of Woodward, made a copy from memory with a few additions, as for instance the motto by Faber "Si tacuisses philosophus mansisses." The new sketch was photographed, and was given to Secretary of War Stanton. Copies were given to Drs. Barnes, Crane, Thomson, Billings and Otis; two were sent to Brinton at Nashville. The negative was then destroyed. (1)

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(1) From Dante's Inferno, Canto XXVIII, lines 133 et seq.

"Without doubt
I saw, and yet it seems to pass before me,
A headless trunk that even as the rest
Of the sad flock paced onward. By the hair
It bore the severed member, lantern-wise
Pendent in hand, which looked at us, and said:
'Woe's me.' The spirit lighted thus himself;
And two there were in one, and one in two.
How that may be, he knows who ordereth so.
When at the bridge's foot direct he stood,
His arm aloft he reared, thrusting the head
Full in our view, that neared we might hear
The words, which thus it uttered: 'Now behold
This grievous torment, thou, who breathing goest
To spy the dead: behold, if any else
Be terrible as this, and that on earth
Thou mayest bear tidings of me, know that I
Am Bertrand, he of Born, who gave King John
The counsel mischievous. Father and son
I set at mutual war. For Absalom
And David more did not Ahitophel,
Spurring them on maliciously to strife.

For parting those so closely knit, my brain
Parted, alas. I carry from its source,
That in this trunk inhabits. Thus the law
..... Of retribution fiercely works in me."

As indicating the friendly feeling of Dr. Woodward and also Surgeon General Barnes towards Dr. Brinton, Dr. W. W. Keen of Philadelphia wrote a letter in 1873 to Dr. Woodward, to which the latter replied June 12, 1873 as follows:

"If there was any way in which I could help you to secure the object of your laudable ambition without acting in hostility to other friends it would certainly give me the greatest pleasure. I learn however that my old acquaintance Dr. Forbes and my former colleague, Dr. Brinton, are among the candidates. You will not therefore be surprised that I should desire to maintain neutrality and be unwilling to advocate any one candidate when I feel equally kindly towards others. I am under the impression that Dr. Barnes has already written a letter in favor of Dr. Brinton, and I doubt not that if you ask him he will forward a statement of your record while connected with the Army, if you think that would be of use."

In January, 1865, the lower room of the Museum building was floored and a large glazed case installed. A workshop for making plaster casts was fitted up in a back building and Hospital Steward Goulding was assigned to the duty of making them; afterwards this work was done by Hospital Steward Ernest Schafhirt.

On February 22, William Bell of Philadelphia was enlisted as Hospital Steward and assigned to duty in charge of the photograph gallery. In March, Hospital Steward Ernest Schafhirt was assigned to duty, to assist Dr. Woodward.

About March 1, E. M. Schaeffer, Hospital Steward, U.S.A., was assigned to duty at the Museum, under Dr. Woodward.

On March 13, Dr. Otis asked that three hogsheads be sunk in the ground for the offal from the workshops.

Brinton, "Memoirs", page 348, says that in March, 1865, when he resigned from the Army, he received from some of the medical officers at Nashville specimens of shot injury; that these surgeons had been notified from Washington that they need not send any more wet specimens to the Museum*

In April, the photographer made 1500 photographs of the assassins of President Lincoln to help the Department of Justice in the arrest.

About May 21, Alfred A. Woodhull, Asst. Surgeon, U.S.A., was assigned to duty at the Museum to assist Dr. Otis.

On June 17, Dr. Otis requested that the whiskey that had been confiscated and was in the hands of the Commissary General be turned over to the Museum to be redistilled to recover the alcohol.

The following circular order was issued June 26:

Surgeon General's Office, Washington, D.C.
June 26, 1865.

Circular Orders,
No. 6.

The Surgeon General desires that when Hospitals shall be discontinued and their Libraries disposed of, the most valuable works, Scientific, Historical, etc., shall be carefully selected, packed and turned over to the Quartermaster's Department for transportation to Surgeon George A. Otis, U.S.V., Curator of the Army Medical Museum, in this city.

By order of the Surgeon General:

W. C. Spencer,
Asst. Surgeon, U.S. Army.

(*I do not find any record of an order of that kind. D.S. Lamb.)

July 1, in a report of Dr. G. A. Otis to the Surgeon General, he says:

"In accordance with your order of October 3, 1864 I assumed charge of the property and financial affairs of the Museum at that date and the direction of the scientific operations of the surgical and photographical departments: the exclusive control of the medical and microscopical departments being assigned to Asst. Surgeon Woodward, U.S.A. by your order of October 6, 1864.

"Early in November the large glazed cases in the upper hall were completed and the osteological specimens were placed in them, being classified according to regions. About two fifths of the annual appropriation was paid to the contractor, H. Wingate, in accordance with the contract made by Surgeon Brinton.

"About the same period a commodious photograph gallery was erected in the yard of the Museum by the Quartermaster's department, and supplied with water, baths, screens, shelving, etc. A few articles of furniture were procured from the Medical Purveyor. A sufficient amount of apparatus of high order of excellence, as is believed, was purchased from the Museum fund at a cost of about $1200.00. Hospital Steward Wills, U.S.A., formerly employed by the Topographical Bureau, was at first entrusted with the photographic work but subsequently a skilful photographer, Mr. Bell, was enlisted as a Hospital Steward and assigned to duty at the Museum as the principal photographer with Mr. Wills as an assistant. It is believed that the photographic work done at the Museum is creditable to the office. Over 50 of the more interesting specimens in the Museum have been represented, of imperial size, and about 40 complete sets of this series, that is about 1000 large photographs, each accompanied with a history of the specimen have been issued to the Medical Directors of the Armies and of Departments, and to eminent military surgeons abroad. These photographs have been much admired and it is thought that the interest felt in the Museum has been augmented by their distribution. Small photographs to serve as a ghide for the wood engravers have been executed to the number of 150, and an equal number of woodcuts have been prepared, illustrating gunshot injuries, means of transportation, etc., and suitable for intercalation in the text of an illustrated catalogue or publication relating to the surgery of the war. Photographs have likewise been made of ambulances, surgical apparatus and of a very large number of cases of interesting injuries, at the general hospitals. Lastly during the month of April, 1865, there were printed 1500 photographs of the assassins of the President, for the assistance of the officers of justice.

"In January, 1865, the Quartermaster's Department fitted up a workshop for a moulder in plaster in the building in rear of the Museum, and also floored the lower hall of the main building and

erected in it a large glass case. Hospital Steward Goulding, U.S.A., assigned to the duty of making plaster casts of pathological specimens, fell sick and died before he had perfected any of his work, but his place was supplied by Hospital Steward E. Schafhirt who has mounted over 100 of the casts and models contributed to the collection, and has made a number of new casts in a satisfactory manner. The casts, models, plans of hospitals, missiles and many miscellaneous subjects of interest are now arranged in the lower hall of the Museum.

"Under the direction of Asst. Surgeon Woodward, U.S.A., the microscopical cabinet has received large accessories. Additional apparatus has been purchased and the means of investigations in this department are unquestionably of unsurpassed excellence. For several months Asst. Surgeon Curtis, U.S.A., has been engaged in experiments in microphotography and the results already attained have been favorably received by the scientific world.

"In the surgical department 997 new specimens have been mounted and catalogued since October 3, 1864, and a large number of others which were simply duplicates of specimens already in the Museum, have been mounted and laid aside for exchange. The specimens contributed during the past year have largely illustrated the reparative efforts of nature after gunshot injuries and the results of surgical operations. The undersigned has devoted all his leisure time to the compilation of a suitable catalogue of the surgical cabinet. Asst. Surgeons Porter and Stone have likewise been employed in this duty when not engaged in collating surgical statistics. Asst. Surgeon Woodhull at present devotes his whole time to the catalogue. About half the specimens are now described and it is hoped that the catalogue will be ready for the press in about four months.

"In the medical cabinet the illustrations of the principal camp diseases of armies are very complete. Many valuable additions have been made during the past year in the shape of specimens of parasitic diseases, and anomalies and deformities, and of morbid processes in general. A large supply of confiscated whiskey having been turned over to the Museum by the Major General commanding the Department of Washington, a sufficient quantity of alcohol has been distilled to mount the wet preparations suitably. A sufficient number of glass jars is now on hand to meet the requirements of the Museum probably for a year to come.

"Arrangements have been made to inaugurate a system of exchanges with the Museum of the Royal College of Surgeons of London, the Society for Medical Improvement in Boston, and the Pathological Society of San Francisco.

"The number of visitors to the collection constantly increases. There has been a cordial collaboration on the part of surgeons in charge of hospitals, and an entire harmony and concert of action between the Medical and Surgical Departments of the Museum. The appropriation for the coming year is ample for the expenditures at present. The Museum already occupies no mean place among scientific collections, and may be regarded as an object of just pride to the Medical Staff of the Army".

On July 21, Henry H. Nichols was doing engraving for the Museum.

On August 24, Dr. Jesse C. W. Kennon, Actg. Asst. Surgeon, was assigned to duty at the Museum to assist Dr. Woodward.

On September 13, Wm. Schultze, Hospital Steward, U.S.A., was draftsman and colorist.

The following circular order was issued on September 27:

Surgeon General's Office, Washington, D.C.
September 27, 1865.

Circular Orders,
No. 15.

By authority of the War Department all Slush Funds of hospitals that have been discontinued, now in the possession of Medical Purveyors, or that may accrue from the sale of articles purchased at hospitals from that Fund, will be forwarded to Surgeon George A. Otis, U.S. Vols., Curator Army Medical Museum, Surgeon General's Office, Washington, D.C., who will receipt for the same.

Medical Directors will also forward any funds of this character in their possession to the same officer.

By order of the Surgeon General.

C. H. Crane
Surgeon, U.S. Army.

About October 1 Dr. S.S. Bond, Hospital Steward, U.S.A., was assigned to duty at the Museum; with Dr. Woodward.

On November 2, an additional photographer was employed, G.O. Brown, Hospital Steward, U.S.A.

On November 3, D. S. Lamb, Hospital Steward, U.S.A., was assigned to duty at the Museum, in the medical side, under Dr. Woodward.

On December 13, the following specimens were selected to be sent to the Paris Exposition of 1867: Ambulance, medicine wagon, four litters and a model of a general hospital.

By the end of the year, the Museum collection had become so large that the Surgeon General directed a subdivision as follows: 1. Surgical Section under charge of Dr. Otis; 2. Medical Section; and 3. Microscopical Section under charge of Dr. Woodward; 4. Human Anatomy Section under Dr. Otis; 5. Comparative Anatomy Section under Dr. Woodward; and 6. Miscellaneous Section under Dr. Otis.

It may be remarked here that a series of 100 post mortem examinations was made at the Freedmen's Hospital, Washington, from August 25, 1865 to May 18, 1866; the first 9 by Steward A. J. Schafhirt, the remainder by Steward S. S. Bond, both of them attaches of the Museum. Steward Lamb assisted Bond from the time of appointment, Nov. 3, 1865, until the close of the series. Still later, Steward Lamb made many other post mortem examinations at the same hospital.

The following were published during the year, based more or less on work at the Museum:

By Dr. Woodward: "On the use of aniline in histological researches with a method of investigating the histology of the human intestine and remarks on some of the points to be observed in the study of the diseased intestine in camp fever and diarrhoea." Am. Jour. Med. Sc., Phila., 1865, XLIX, 106.

By Drs. Otis and Woodward, Circular No. 6, Surgeon General's Office.

"Reports on the extent and nature of the materials available for the preparation of a medical and surgical history of the rebellion." Washington, Nov. 1, 1865.

Surgeon General's Office, Army Medical Museum, Photographic Series, 109 photographs.

On March 20, 1866, there was a burglary in the photographic gallery of the Museum. On March 22, an official inquiry was made as to precautions taken for the safety of the Museum at night. Dr. Woodhull reported that the burglars had entered through a window which had been left unfastened. On March 23, Dr. Otis reported to the Surgeon General that the value of the apparatus stolen was about $469.00. Much more valuable apparatus was not disturbed. There was no watchman. Only an orderly was on the premises from 4 p.m. to 9 a.m. next day. A night watch had now been detailed.

On May 25, a lot of non-medical books which had been sent to the Museum from discontinued hospitals were ordered to be divided among four employees who were connected with Sunday Schools in Washington, to be given to the said Schools.

On June 11, Hospital Steward Bond was transferred from the Museum to clerical duty elsewhere.

In the Atlantic Monthly of July, 1866, p. 1, was an article by Dr. S. Weir Mitchell, of Philadelphia, entitled "The case of George Dedlow," purporting to be an account of an officer of an Indiana Regiment who was shot and suffered amputation in both

arms and both thighs, his amputated legs being deposited in the Museum, Nos. 3486 and 3487. The story is fictitious, as no case of quadruple amputation was reported for the Army during the Civil War.

Through the courtesy of Dr. W. W. Keen of Philadelphia, Dr. J. A. Mitchell of Philadelphia furnished the following extract from Dr. S. Weir Mitchell's private papers, which is quite similar to the statement on page 142 of the Memorial Addresses &c. of Mitchell, published in 1914:

"I never again wrote anything for publication until the year after the war. One night I was conversing with my friend, Henry Wharton, on the subject of the loss of limbs. I mentioned the singular phenomena connected with this loss and spoke of a man who had lost both legs and both arms in the fight at Mobile Bay. Wharton, who was fond of such talk, laughlingly suggested that possibly a man might thus lose a certain part of his consciousness of his own individuality. After he left I began to amuse myself by writing the history of such a person. I was at a loss for a name when, standing on a step in Price St., I saw opposite me, on a jeweler's sign, "Dedlow." I thought this a good name for a man who had lost his legs and so called this 'The case of George Dedlow.'"

"I loaned this to my friend, Mrs. Casper Wister, who gave it to her father, the late Rev. Dr. Furness, to read. Then I forgot all about it. I was a busy practising doctor. It had been the amusement of one or two evenings. Dr. Furness sent it to the Rev. Edward E. Hale, then editor of the Atlantic, and to my surprise and amusement, I received a check, I think about eighty dollars, and the proof of my story.

"It was considered so important that it was made the leading article in the next number but one of the Atlantic. It attracted immense attention. So real did it appear that subscriptions were made for the unfortunate man, inclosures directed to what was known as the Stump Hospital at Philadelphia, and for a long while no one knew who had written this marvellous history."

On September 24, there was a fire in the photograph gallery, apparently due to hot ashes placed in a wooden box. The damage was slight.

The old Ford's theatre building in which President Lincoln was assassinated had been closed after the tragedy. Congress had authorized its use for purposes of the Museum and the Pension Records. The building had been altered and repaired and was nearly ready for occupancy and preparations were made to occupy it. Its old number was 454 Tenth Street, N.W., afterwards No. 511.

On October 20, Dr. Otis requested the Quartermaster to take down the cases in the Museum in order to give the use of the building to the Medical Department of Columbian College (or National Medical College as it was then called) for lecture purposes.

On November 12, Dr. Otis asked the Quartermaster for wagons to begin the removal of specimens from the H Street building to the old Ford's theatre building. The removal now proceeded somewhat irregularly until December 8, when it was completed. The part under charge of Dr. Woodward occupied in removal from November 19 to 24.

On December 11, the removal of material and records from 180 Pennsylvania Avenue to the Museum building began and was completed, and No. 180 was vacated December 21.

The following publications of 1866 by Dr. Woodward were based more or less on work at the Museum:

"Report on the causes and pathology of pyemia (septicaemia)"; Trans. Am. Med. Assoc., Phila., 1866, XVII, 171.

"On photomicrography with the highest powers, as practiced in the Army Medical Museum"; Am. Jour. Sc. & Arts, New Haven, 1866, XLII, 189.

"On micrography with high powers"; Quart. Jour. Micros. Soc. Lond., 1866, VI, 165."

By Dr. Woodhull: "Catalogue of the Surgical Section of the United States Army Medical Museum. Prepared under the direction of the

Surgeon General, U.S. Army, by Alfred A. Woodhull, Asst. Surgeon and Brevet Major, U.S. Army." Washington, Government Printing Office, 1866, 4to. pp. 664 (4719 specimens).

The classification comprised thirty chapters, each with more or less minute subdivisions. The chapters were as follows:

Chapter 1. Injuries and diseases of the cranium.
2. The face.
3. Vertebrae and cord.
4. Thoracic parietes.
5. Shoulder joint.
6. Shaft of humerus.
7. Elbow joint.
8. Shafts of radius and ulna.
9. Carpus.
10. Hand.
11. Pelvis.
12. Hip joint.
13. Shaft of femur.
14. Knee joint.
15. Shafts of tibia and fibula.
16. Tarsus.
17. Foot.
18. Organs of circulation.
19. Organs of respiration.
20. Abdominal viscera, etc.
21. Results of operations on soft tissues.
22. Injuries to soft tissues, not viscera.
23. Erysipelas, etc.
24. Tumors.
25. Casts.
26. Photographs and drawings.
27. Weapons and projectiles.
28. Materia chirurgica.
29. Miscellaneous articles.
30. Lower animals.

The specimens for the most part were prepared and mounted by Dr. Fred. Schafhirt and his son, Ernest Schafhirt.

In 1867, copies of the Surgical Catalogue as well as other publications of the Surgeon General's Office were from time to time sent to institutions and persons abroad. The acknowledgements were usually perfunctory. (See Bull. Acad. Imp. de Méd., Paris, 1870, XXXV, page 274, March 29, 1870).

The slush funds from discontinued hospitals were still being turned over to the Museum.

On January 23, 1867, the office hours were extended from 3 p.m. to 4 p.m.

On March 25, an order was issued by the Quartermaster General (D.H. Rucker) authorizing quartermasters in charge of Government trains returning from the frontier or other remote points, upon the requisition of medical officers, to furnish transportation by such trains for collections for the Army Medical Museum, when such transportation could be furnished without injury to the public service.

During the Civil War, the accessions to the Museum consisted principally of specimens illustrating the injuries and diseases that produce death or disability during war, thus affording material for precise methods of study of problems regarding the diminution of mortality and alleviation of suffering in armies; only a few acquisitions had been made of anatomical objects, or of specimens illustrating subjects collateral to military medicine.

To enlarge the scope of the Museum, Surgeon General J. K. Barnes through Circular No. 2, Surgeon General's Office, April 4, 1867 invited medical officers of the Army to contribute, besides medical and surgical specimens, the following:

1. Rare pathological specimens from animals, including monstrosities.
2. Typical crania of Indian tribes; specimens of their arms, dress, implements, rare articles of their diet, medicines, etc.
3. Specimens of poisonous insects and reptiles, and their effects on animals.

On April 13, the Museum collection had been arranged and on the 16th was officially opened to visitors.

On September 16, the record was made of a spring of water in the cellar of the Museum building. Indeed there were said to be several springs. The water accumulated especially in the ash-pit and was troublesome.

On December 10, an order for jars was given to the New England Glass Company.

The total number of visitors who registered their names from April 16 to December 31 was about 6000.

Hospital tents as well as the other things previously mentioned had been sent to the Paris Exposition of 1867.

Two Catalogues were issued during the year 1867 as follows:

"Catalogue of the Medical Section of the United States Army Medical Museum. Prepared under the direction of the Surgeon General, U.S.Army, by Brevet Lieut. Colonel J. J. Woodward, Assistant Surgeon, U.S. Army, in charge of the Medical and Microscopical Sections of the Museum." Washington, Government Printing Office, 1867, 4to. pp.136 (described 877 specimens).

The classification was in eight chapters as follows:

1. Nervous system, under which were Brain, Membranes of brain, Pineal gland, Bloodvessels of Encephalon, and Spinal cord.

2. Organs of circulation, under which were Heart, Arteries and Veins, Lymphatic glands and Thyroid gland.

3. Respiratory organs, under which were Air passages, and Lungs and Pleura.

4. Digestive organs, under which were Mouth, Pharynx and Oesophagus, Stomach, Intestinal canal, Peritoneum and Omentum, Liver, Pancreas and Spleen.

5. Urino-genital organs, under which were Kidneys, Suprarenal capsule, Urinary passages and Bladder, Male organs of generation, and Female organs of generation and Fetus.

6. Organs of locomotion, under which were Muscles and Fasciae, and Bones and Joints.

7. Integument.

8. Anomalies and Monstrosities.

The specimens had been prepared by Hospital Stewards A. J. Schafhirt, S. S. Bond and S. D. Lamb.

"Catalogue of the Microscopical Section of the United States Army Medical Museum. Prepared under the direction of the Surgeon General, U.S. Army, by Brevet Major Edward Curtis, Asst. Surgeon, U.S. Army." Washington, Government Printing Office, 1867, 4to. pp. 161 (described 2120 specimens).

The classification was as follows:

Part 1st. Mounted preparations for the microscope; 18 chapters.

1. Connective tissue system.
2. External tegumentary system.
3. Muscular system.
4. Osseous system.
5. Vascular system.
6. Nervous system.
7. Digestive organs.
8. Respiratory organs.
9. Urinary organs and suprarenal glands.
10. Sexual organs, ova and fetal appendages.
11. Organs of vision.
12. Organ of hearing.
13. Organ of smell.
14. Pathological growths.
15. Parasites.
16. Articles of food and clothing, and materia medica.
17. Diatomes and other test objects.
18. Miscellaneous.

Part 2nd. Photographic negatives of microscopic objects; 18 chapters with the same titles as under Part 1st, omitting sections 9 to 13.

Part 3rd. Photographs presented to the Museum.

The specimens, except where otherwise stated, were prepared and mounted, the greater part, by Dr. J.C.W. Kennon, the remainder by Asst. Surg. Curtis and Hospital Steward E. M. Schaeffer.

The other publications during the year were:

July 1: "Report on Amputations at the Hip Joint in Military Surgery," published as Circular No. 7, Surgeon General's Office, by Dr. Otis, and also a publication by Dr. Otis: "Drawings, Photographs and Lithographs illustrating the histories of seven survivors of the operation of amputation at the hip joint, during the War of the Rebellion, together with abstracts of the seven successful cases." Surgeon General's Office, 1867.

The following by Dr. Woodward was based on the work at the Museum: "On monochromatic illumination"; Quart. Jour. Microsc. Soc. London, 1867, VII, 253.

Ford's theatre building when taken for Museum purposes was altered as follows: three floors, consisting of brick arches resting on iron girders, were put in and a main stairway of iron. But the roof, which was covered with slate, consisted of ordinary wooden beams supporting pine sheathing boards, and the upper hall occupied by the Museum was ceiled with lath and plaster fastened to wooden studding. The North wing of the building, which was under the great roof, was of ordinary dwelling house construction with wooden floors and stairways; the same was true of the South wing which however had a separate roof. (Dr. Woodward's letter to the Surgeon General, Oct. 15, 1877.)

Early in 1878, it was found necessary to tear down the back wall of the South building and build it up anew; it was badly cracked. In the fall of 1878, the owner of the property immediately north of the Museum building tore it down in order to erect a new building, intending to have a cellar excavated. This necessitated underpinning the north wall of the Museum building, which did not go down as far as the excavation for the intended cellar.

The following is the description of the building by Dr. Woodward in 1871: (1)

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(1) "The Army Medical Museum at Washington," Lippincott's Magazine, March, 1871, p. 233.

"The Army Medical Museum is situated on Tenth Street between E and F where it occupies a portion of a building, the rest of which accommodates a branch office of the Surgeon General. This building was formerly well known to the visitors of Washington as Ford's Theater. It is a plain brick structure, three stories high, 71 feet front and 109 feet deep. At the rear of the North side of the main building is a small wing which accommodates some of the Museum workshops, another wing at the front of the South side contains the chemical laboratory and the offices of the medical officers on duty. The whole establishment is devoid of any pretention to architectural beauty, and the exterior being painted dark brown has a rather gloomy aspect.

"The upper story of the main building is the principal hall of the Museum. It is well lighted by windows in front and in rear, and by a large central skylight which has beneath it in each floor an oblong opening through which the light falls into the departments below. The numerous glass cases for the accommodation of specimens, which cover all available wall space, and stand out in long lines upon the floor, are most of them constructed in the plainest manner, with frames of pine wood painted white, for use evidently rather than for show. The floors are of brick on iron arches; that in the Museum hall being covered with encaustic tiles; the principal stairway is of iron, and the roof is covered with slate."

"This portion of the establishment may therefore be regarded as nearly fireproof. Unfortunately this is not the case with the wings, for the protection of which a plentiful supply of hose is kept in readiness, and a steam force pump is connected with the boiler of the steam heating apparatus for use in any emergency."

On January 13, 1868, Dr. Otis wrote a series of letters to Army Medical Officers in regard to procuring, for the Museum, crania and weapons of American Indians. On January 14, he wrote another series of letters stating that a subsection of the Museum had been formed to include diseases and injuries of the lower animals and asking for specimens.

[illegible]

In February, a circular from the Surgeon General was issued asking among other things for photographs and casts showing the results of injuries, and also for pathological specimens.

On February 22, William Bell, the photographer, was discharged because of the expiration of his three year term of service.

On February 27, Dr. Woodward recommended that Dr. D. S. Lamb, Hospital Steward, U.S.A., be appointed Acting Asst. Surgeon, U.S.A. He was appointed April 1st.

In April, Dr. Woodhull was relieved from duty at the Museum.

In May, Prof. Henry of the Smithsonian Institution donated to the Museum about 150 Indian crania. In this month also, the Museum acquired the "Gibson" collection. The history of this acquisition is as follows:

In a letter of John H. Janeway, Asst. Surgeon, U.S.A., Office Medical Purveyor, Richmond, Va., January 6, 1866, to A. A. Woodhull, Asst. Surgeon, U.S.A., Surgeon General's Office, he said:

"Doctor: In accordance with your note of Dec. 29, 1865, I visited in company with Dr. Gaillard of this city and Col. I Simons, U.S.A., Medical Director of this Department, the collection of the late Dr. C. B. Gibson, now offered for sale, and have the honor to transmit herewith a catalogue of the same. The great bulk of this collection was made by Prof. Wm. Gibson, Emeritus Professor of Surgery, University of Pennsylvania, and which for a long time was used by him in his lectures, and well known for its completeness and great value.

"The forty-two oil paintings, aside from their professional value are of great value as works of art. The osteological part of the collection I consider unique, embracing I think every known fracture and disease of bone, and showing the powers of nature in the repair of the same. A number of specimens are from Waterloo. I think that this part of the collection would be of great value in filling a gap in the Army Museum, which must necessarily exist, showing reunion after fractures, sabre cuts and repair from disease.

"The wax preparations are elegant specimens and the leather

ones, though not much used now, are the finest that I have ever seen. The whole collection is in good state of preservation, specimens well mounted and enclosed in upright cases. The college at New Orleans and at this place and some parties in Philadelphia have been writing about the price &c. Mrs. Gibson proposes in regard to the price the following, which I consider very liberal: She will appoint one professional man, the other party to appoint one, and the two to appoint a third, and she agrees to be bound by the decision of the three."

In 1868, the Museum bought the collection. Dr. Janeway was still on the spot. He wrote April 23 to the Surgeon General:

"I have the honor to report that I purchased yesterday at public auction, for cash, the entire collection known as the "Gibson Cabinet," for the sum of $1015.00. I was induced to exceed by $15.00 the limit prescribed in a communication from your office, dated April 18th, by the fact that a large collection of urinary calculi, all very valuable, and some exceedingly rare, was added to the cabinet at the time of sale. These were not included in the published catalogue, and will fill a vacancy now existing in the Army Medical Museum, and had they been offered as a separate lot it would have brought considerably more than I gave for them, parties being present who were anxious to purchase them."

In a private note to Dr. Otis, Dr. Janeway said that [Dr.] "Gross was prepared to go $750. himself and $250. for another party if the collection had been sold by lots or specimens.....Was it Baxter, or who the Devil was it that sent me under the frank of Senator Yates that resolution concerning the appropriation, forbidding the Surgeon General to use any more money?"

The collection filled 15 boxes and 3 casks and comprised 413 dry preparations (bones), 2 plaster casts, 52 wax preparations illustrating human anatomy, and 42 oil paintings by Sully, of tumors, calculi, bone diseases, hydrocephalus, hemorrhoids, diseases of eye, of genito-urinary organs, cancer, goiter, spinal curvature, &c.; altogether 529 specimens. They were received at the Museum April 30 and May 1 and 2.

On May 6, the Surgeon General held a reception at the Museum, for the American Medical Association, which was then meeting in

Washington. Dr. Woodward showed transparencies of microphotographs.

On June 6, a Circular of Instructions was issued by L. A. Edwards, Surgeon, U.S.A., Chief Medical Officer of the Freedmen's Bureau, to medical officers of the Bureau, directing them to collect specimens for the Army Medical Museum. (See letter of Dr. Otis of Nov. 3, 1877.) A number of interesting specimens were received at the Museum as a result of this circular.

On July 11, a letter from Dr. Crane, Asst. Surgeon General, stated that a Veterinary Museum, collected by Dr. L. A. Brailey, V.S., and arranged by him for the Surgeon General, would be turned over to the Museum. (Dr. Brailey is credited with 29 specimens).

Sometime during the summer a paper was issued by the Surgeon General in regard to the microscopical work of the Museum.

On September 1, the following was issued:

War Department, Surgeon General's Office,
Washington, D.C., September 1, 1868.

MEMORANDUM FOR THE INFORMATION OF MEDICAL OFFICERS.

"The officers of the Medical Staff are informed that a craniological collection was commenced last year at the Army Medical Museum, and that it already includes 143 specimens of skulls. The chief purpose had in view in forming this collection is to aid in the progress of anthropological science by obtaining measurements of a large number of skulls of the aboriginal races of North America. Medical Officers stationed in the Indian country or in the vicinity of ancient Indian mounds or cemeteries in the Mississippi valley or the Atlantic region have peculiar facilities for promoting this undertaking. They have already enriched the Mortonian and other magnificent craniological cabinets by their contributions, and it is hoped they will evince even greater zeal in collecting for their own Museum. A list of the crania now in the possession of the Museum will soon be published in the Catalogue of the Osteological Series of the Anatomical Section. It is sufficient here to state that 47 of the 143 specimens are Indian crania from the following tribes:

Tsuktshi, 1; Flathead, Chenook, Selipsh, Nisqually, 13; Californian, 2; Piegan, Spokane, Mandan, 3; Arickaree, Gros Ventre, 2; Sioux, Kaw, Minataree, Menominee, 6; Cheyenne, Kiowa, Arrapahoe, Wichita, 10; Navajo and Apache, 5; doubtful or mixed breeds, 5. These crania were collected by Brevet Lieutenant Colonels J. Cooper McKee, D.C. Peters, C.C. Gray, F. L. Town, Surgeon B. E. Fryer, Brevet Majors J. F. Weeds, W. H. Forwood, Acting Assistant Surgeons W. Matthews and G. H. Oliver, Dr. George Suckley, Mr. George Gibbs, Lieutenant (now Brevet Major General) G. K. Warren, and Mr. Lloyd Brooke. Information has been received of the shipment of an interesting series of crania exhumed from an ancient Indian mound near Fort Wadsworth, Dakota Territory, by Acting Assistant Surgeon A. I. Comfort, and of many crania procured at the instance of the Medical Directors of the Department of Columbia and the District of Texas.

"While exotic and normal and abnormal crania of all descriptions are valued at the Museum for purposes of comparison, it is chiefly desired to procure sufficiently large series of adult crania of the principal Indian tribes to furnish accurate average measurements. Medical Officers will enhance the value of their contributions by transmitting with the specimens the fullest attainable memoranda, specifying the locality whence the skulls were derived, the presumed age and sex, and, in the case of "Mound" skulls, or of those from cemeteries, describing the mode of sepulture, and any traces of weapons, implements, utensils found with the specimens, or any other circumstance that may throw light on their ethnic character.

"The subject is earnestly commended to the attention of the Medical Officers of the Army.

BY ORDER OF THE SURGEON GENERAL:

C. H. Crane,

Assistant Surgeon General,
U. S. Army."

During the month of November, Prof. John Gamgee of London was employed by the Commissioner of Agriculture to investigate diseases of cattle in the United States. As the Bureau of Agriculture did not possess a microscope, one was ~~lent~~ loaned to Prof. Gamgee by the Museum.

On December 18, Dr. Woodward gave a lecture and lantern exhibition to members of Congress at the Museum.

The following publication by Dr. Woodward during the year was based on work done at the Museum:

"Remarks on the new 19 band test plate of Nobert." Quart. Jour. Microsc. Soc., London, 1868, VIII, 225. Same title in: Amer. Jour. Sc. and Arts, New Haven, 1868, XLVI, 352.

On January 4, 1869, 200 photographs were sent to the Royal College of Surgeons, Dublin, Ireland.

On January 13, specimens were sent to the College of Physicians, Philadelphia; 26 specimens showing shot fracture of bone, 7 plaster casts, and 4 volumes of surgical photographs.

On January 14, Dr. Otis stated that the Museum had a lithographic press with stones, etc. that cost $290.84 and had not been used; none of the employees knew how to use it. On his advice it was sold.

On January 14, a letter was sent to the Surgeon General, as follows:

"Smithsonian Institution,
Washington, January 14, 1869.

"Dr. J. K. Barnes,
Surgeon General, U.S. Army.

Dear Sir:

On the return of the exploring Expedition under Admiral, then Capt. Wilkes, the Government established a National Museum consisting of specimens of Natural History and Ethnology, which it subsequently placed in charge of the Smithsonian Institution, with authority to increase the collection by exchange and otherwise. The Government having since established an Army Medical Museum to be composed of specimens to illustrate the various branches of science connected with anatomy, physiology, medicine and surgery, and also a Museum in charge of the Department of Agriculture to consist of articles intended principally to illustrate the economical resources of the country, it is important that these establishments should be in harmonious cooperation in order

that the collections of the Government in the city of Washington may be complementary to each other, or in other words, each as perfect as possible in definite lines.

"With this view I address you at present in regard to an exchange of specimens which are now in possession of the Army Medical Museum, relative to Indian Archaeology and Anthropology, for specimens relative to human and comparative Anatomy in the Smithsonian Institution. The specimens referred to as now in our possession consist of a series of skulls which I am informed will be required for the preparation of a monograph, under your direction, of the crania of North America. Those for which we propose to make an exchange and which are in the Medical Museum, consist of a collection of objects illustrative of the manners, customs and arts of the Indians of this continent.

"Hoping to receive a favorable response to this proposition, I have the honor to be with much respect, yours &c.

(Signed) Joseph Henry
Secretary, Smithsonian
Institution."

The Assistant Surgeon General, Dr. C. H. Crane, endorsed on the letter, the following to Dr. Otis, Curator of the Museum, January 15: "As the Surgeon General will be most happy to make the exchange proposed by Prof. Henry, and as you are familiar with the entire negotiations, please write a suitable reply to this letter for the Surgeon General's signature."

Already, however, in May, 1868, Prof. Henry had sent about 150 Indian crania to the Army Medical Museum.

The following is the letter from Dr. Otis to Prof. Henry, January 21:

"Referring to your letter to the Surgeon General of January 14th, and to his reply of the 16th, I have the honor to inform you that I have been authorized by the Surgeon General to make the necessary arrangements with the conservator of the Smithsonian Anatomical collection for the proposed exchange of the objects illustrative of the manners and customs of the Indians of North America and of Indian archaeology in the possession of the Army Medical Museum for the specimens illustrative of human anatomy in the Smithsonian collection....."

As the result of the negotiations, very many specimens from this time were exchanged between the Smithsonian Institution and the Army Medical Museum, and also between the Museum and the Department of Agriculture. For instance, in June, 1870, a lot of insects were sent to the Department of Agriculture; in July, 1878, an herbarium containing some 300 specimens. Most of these were received from Army officers who sent them to the Museum. The number of specimens sent to the Smithsonian was very large; it is impossible to learn the number without a very tedious research, but it went into the thousands.

On January 22, Prof. S. F. Baird, of the Smithsonian, offered to transfer to the Army Medical Museum the monstrosities and embryos in the Smithsonian Institution. Dr. Woodward replied stating that he would be glad to have the monstrosities but did not care for the embryos. (Afterwards the Museum sought to get embryos.)

On February 1, Dr. Otis was authorized to buy bedside trays from the Medical Purveyor to use for carrying specimens in the Museum.

On February 12, Dr. Otis stated that Prof. George A. Matile had been instructed by the French Minister to get permission to make plaster casts of Indian crania in the Museum.

On February 18 and 20, each evening, Dr. Woodward gave an exhibition of transparencies, at the Museum.

On March 8, the first instalment of crania from the Smithsonian under the agreement was received.

On April 16, there was a reception at the Museum to the National Academy of Sciences. Dr. Woodward showed transparencies of photomicrographs.

On April 24, a series of photographs and plaster casts were presented to the New York Hospital.

On May 17, a letter from General Crane, Asst. Surgeon General, to Dr. Otis, approved the sending of "anything" that could be spared and deemed best to Russia. "It is desirable to foster the fraternal relations which now exist between the subjects of the Tsar and ourselves." (This remark had reference to the Russian Government sending its fleet to the United States during the Civil War).

On June 18, Dr. Curtis went to Des Moines, Iowa, to photograph the eclipse of the sun. (The results of the expedition were published in "Appendix II. Reports on Observations on the Total Eclipse of the Sun, August 7, 1869. Conducted under the direction of Commodore B. F. Sands, U.S.N., Superintendent of the U.S. Naval Observatory, Washington, D.C., Government Printing Office, 1869").

On July 3, the Acting Commissioner of Agriculture stated that thereafter all the curios received by that Department but which pertained to the Army Medical Museum would be promptly sent to the Museum with the view of carrying out an interchange of specimens.

On August 12, Dr. Otis submitted to the Surgeon General a tabular statement of measurements of 697 crania in the Museum. He had had photographs made of the more remarkable crania according to the directions of the British Anthropological Society.

On October 11, a pathological cabinet collected chiefly by the labors of Professors Miller, Stone and Lincoln, of the National Medical College, Washington, D.C., was obtained in exchange for a series of pictures and models suitable for class demonstration, which had been prepared when the establishment of an Army Medical School was contemplated.

The following publications by Dr. Woodward during the year were based on work done at the Museum:

"On the permanent preservation of histological preparations as practiced at the Army Medical Museum, Washington, D.C." Am. Jour. Med. Sc., Phila., 1869, LVII, 277.

"Heliostat for photomicrography"; Month. Microc. Jour., London, 1869, I, 29.

"Abstract of Lecture on photomicrography applied to class demonstrations"; Dental Cosmos, Phila., 1869, XI, 397.

"Further remarks on the new 19 test band plate of Nobert and on immersion lenses"; Month. Microc. Jour., London, 1869, II, 289, and III, 107, pp. 50 and 103.

"Additional remarks on the 19 test band plate of Nobert"; Am. Jour. Sci. and Arts, New Haven, 1869, XLVIII.

Report, January 2, by Dr. Otis on "Excisions of the head of the femur for gunshot injury." Published as Circular No. 2, Surgeon General's Office.

By Dr. Curtis: "Report on the Diseases of Cattle in the United States." 8 vo. Washington.

April 13 to 17, 1870, the National Academy of Sciences met at the U.S. National Museum. During the session Dr. Otis read the two following papers based on his observations at the Museum:

CRANIOLOGICAL OBSERVATIONS.

Although few of those members of the Academy whose studies are directed to anatomical science are present, I would ask permission to occupy a few minutes in speaking of craniology, and particularly of the measurement and modes of delineating human skulls.

During the past two years over nine hundred human crania have been collected at the Army Medical Museum. Three hundred and seventy-six were acquired from the Smithsonian Institution, in exchange for objects of ethnological interest contributed by medical officers to the Army Medical Museum; others by the purchase of the surgical collection of the late Professor William Gibson and at

auction sales in Europe; others by exploration of tumuli in the Mississippi valley and in Dakota by General Swift, Medical Director of Vicksburg, and by Acting Assistant Surgeon Comfort at Fort Wadsworth, and the remainder from medical officers of the army stationed at the West.

Seven hundred and thirty-four of these crania have been measured. After considering the methods proposed by Tiemann, Sir William Hamilton, Professor Treadwell, the late Samuel George Morton, Doctor J. Barnard Davis, Mr. J. S. Phillips, Welcker, Doctor J. Aitken Meigs, and Professor Jeffries Wyman, I determined to adopt the mode of measurement proposed by the latter anatomist, in his communication to the Boston Society of Natural History, vol. IX, April 15, 1868, giving the weight in grammes, the capacity in cubic centimeters, the length in millimeters, the indices of the length, breadth, and height, and of the foramen magnum in one-thousandths of the long diameter. The weight has been ascertained by a balance of Becker, of Antwerp, the lower jaw being detached; the internal capacity by number eight shot; the diameter by Davis & Thompson's callipers, as made by Charrière. The facial angle, by a modification of Busk's goniometer, made by an invalid at the Soldiers' Home; the circumference and other measurements by a steel tape measure, of Tiemann's make.

The general conclusions deduced upon these measurements are that the position of the foramen magnum is a more important race characteristic than the facial angle. That the variations in the dimensions of crania of individuals of the same race and sex were so great that any generalizations of value could only be looked for in averages obtained by the examination of a large number of skulls, and that the examination of a large series of specimens is necessary to determine what osteological peculiarities have real anthropological significance. That, judging from the capacity of the cranium, the American Indians must be assigned a lower position in the human scale than has been believed heretofore. That the so-called prehistoric skulls from California and Illinois, by their pithecoid character, suggest views favorable to the doctrine of progressive advancement of the human race in brain development. That there is a marked difference between the crania found in the Northwestern and New England tumuli and those exhumed in Arkansas, Louisiana, and other Southern States and Territories. The former resemble the crania of the Esquimaux, of the Lapps, and other hyperborean races; the latter, those of the ancient inhabitants of Mexico and Peru in some instances, and in others of the American Indians now existing. The distinctive peculiarities of the skulls exhumed from the Northern mounds is corroborated by the appearances of the long bones. I have been able to reconstruct three skeletons of these Northern mound builders and to measure the femurs and shinbones of some forty-one others. The shortness of the lower extremities, the incurvation forward, and lateral compression of the tibia, indicate that these remains belong to a people resembling the existing Esquimaux.

I may remark, in passing, that in almost all cases there were traces of periostitis of the tibia, and that the rude bone awls and stone implements found in the crypts, together with their re-

mains, indicated that they were clad in skins and that their lower limbs were exposed to the inclemencies of the weather.

For the delineation of skulls I have employed both photography and the instrument invented by Doctor Lucae to carry out the method hinted at by Albinus and by D'Alton. For purposes of measurement the former method is very faulty, since the image may be distorted either by the position of the objects or of the camera; but with Dr. Lucae's instruments, described in 1861 in his "Morphologie der Rassenschaedel," and adopted by the Anthropological Congress held in Göttingen in that year, and by Von Baer, Vrolich, and the venerable Rudolph Wagner, outlines of the skull may be made, an orthographic projection from which two or three copies on bibulous paper can be taken, and measurements secured almost as accurate as from the specimen itself, and far preferable to those made by perspective drawing.

ON ARTIFICIAL DEFORMATIONS OF SKULLS.

The principal forms of distorting the cranium by artificially compressing the head during infancy, while the bones of the skull are still pliable - either by flattening the frontal region, as practiced by the Indians of Oregon, or by making the occipital region a nearly vertical plane, after the fashion of the ancient Peruvians and Mexicans, or by elongating the skull, a custom heretofore supposed to be peculiar to the natives of the north part of Vancouver's Island, are familiar to ethnologists, as well as the methods by which these deformations were produced, and I will not trespass upon the time of the Academy by rehearsing facts already recorded.

I desire only to state briefly, that since the acquisition of Alaska it has been discovered that the practice of elongating the skull by compressing it during infancy by a circular bandage is common on many of the Aleutian Islands, and that, as Curator of the Army Medical Museum, I have received from this source six specimens of this variety of cranial distortion. Furthermore, that I have been informed by a correspondent in the Sandwich Islands, that whale-ships returning from the Okhotsk Sea, have brought to Honolulu a number of such distorted crania. Specimens of this form of artificial distortion of the skull, are so rare that I present a few for the examination of members of the Academy.

In his work on the cranium, Mr. Hilton of Guy's Hospital, London, has, from the examination of two crania in the collection of the Museum of that hospital, expressed the opinion that the suppression of the frontal sinuses observed in the flat heads of Oregon must be attended by a diminution of the acuteness of the sense of smell. From an examination of thirty-six crania of Chinooks and other flatheads, I am convinced that this opinion is erroneous, since in every instance in which the development of the frontal sinuses has been prevented by artificial compression, the maxillary sinuses, over which the Schneiderian membrane extends also, have a greater and compensating development.

I am assured also, by many officers who have been stationed in Oregon, that the flatheads suffer no impairment of any of the special senses in consequence of the distortion of their skulls, and partic-

many evidences that their sense of smell is acute,

among others the custom of the young women of using aromatic herbs as a substitute for perfumes. The practice of flattening the frontal region is sometimes fatal, as demonstrated by specimen No.116, Section I, Army Medical Museum, a cranium of a female child of about three years, with periostitis and incipient caries of the frontal and right parietal.

During the meeting of the National Academy of Sciences, a reception was held at the Army Medical Museum by the Surgeon General.

On April 30, the contract of Dr. J.C.W. Kennon, Acting Asst. Surgeon, Microscopist of the Museum, was annulled.

On May 4, there was an exhibition of lantern slides at the Museum by Dr. Woodward.

On May 7, a pair of overshoes that had been used by President Lincoln was sent to the Surgeon General by the Chief Clerk of the War Department and the Surgeon General sent them to the Museum. There is however no record of their receipt and they are not in the Museum.

On May 20, a meeting was held at the Museum in memory of Sir James Y. Simpson of Edinburgh, eulogies were pronounced and appropriate resolutions adopted.

During the month of May, the Surgeon General authorized Dr. Woodward to make a series of lantern slides at his own expense, to be sold to persons who might desire them.

On June 7, Dr. Curtis resigned from the Army and left the Museum.

On June 28, in the "Gazette des hospitaux civils et militaires", Vol. XLIII, page 293, Dr. Berenger-Féraud of Paris, reviewing the catalogues of the Museum, paid an eloquent tribute to the intelligence, energy, vigor and activity of the people of the United States. He said that the United States had done as much in the matter of an anatomico-pathological Museum in five years as had been done in Europe in a century. He analyzed the published catalogues, Surgical, Medical and Microscopical. These catalogues contained more specimens than were in all the anatomico-pathological museums in Europe combined. He spoke p[illegible] illustrations.

The Surgeon General's report for 1869-70 states that specimens had been exchanged with the Smithsonian Institution, Agricultural Bureau, Museum of College of Physicians, Philadelphia; Museum of New York Hospital, Peabody Museum at Cambridge, Mass., Blackmore Museum, England, and Museum at Oxford, England. Also that nearly all works on military medicine and surgery published in the previous five years had been partly illustrated from specimens in the Army Medical Museum; notably the works of Billroth and Pitha, Holmes' "System of Surgery", and Didiot's "Service de Santé des Armées."

In an article of August 11 entitled "Science schools and museums in America," by Saint George Mivart, published in Nature, London, page 290, is the following:

"The Army Medical Museum contains a series of excellently numbered preparations of great professional interest, remarkable chiefly for its profuse exhibition of the effects of shot, shell and other implements of war on the human frame. The materials for this Museum were chiefly collected during the American civil war. It may well be said that the Americans are a wonderful people. There are few other nations which would have been capable of utilizing the results of a protracted internecine war as to make them available in after years towards the advancement of medical science and alleviation of human pain."

On October 18, Dr. Otis was authorized to exchange with Dr. J.G.F. Holston of Washington, some anatomical models acquired with the Gibson collection, and not thought appropriate to the Museum collection, but useful only for class demonstration, for some valuable books.

In November, Dr. Irving C. Rosse, Actg. Asst. Surgeon, was assigned to duty to assist Dr. Otis.

The preparation of bone specimens on a large scale, as had been necessary in the early years of the Museum, lacked the thoroughness necessary to avoid attacks from insects, and much dust and debris appeared in the Museum cases in spite of the free use of camphor. In time this annoyance ceased and the more thorough and much less frequent preparation of bone specimens precluded its recurrence.

The following publications of this year were based more or less on work done at the Museum:

By Dr. Woodward, 1870, January 4. "Report on Magnesium and Electric Lights as applied to photomicrography." With photographs. Published by the Surgeon General's Office.

June 4. "Report on oxy-calcium light as applied to photomicrography." With photographs. Published by the Surgeon General's Office.

July 6. "Report on certain points connected with the histology of minute bloodvessels." With photographs. Published by the Surgeon General's Office.

"The Medical and Surgical History of the War of the Rebellion," Part I, Vol. 1. Medical History. Washington, Government Printing Office, 1870. 4to. 726 pp.

"Letter to Mr. Jabez Hogg with regard to Dr. Pigott's papers on the markings of certain test objects particularly the Podura scale"; Month. Microsc. Jour., London, 1870, III, 324.

"The definition of Nobert's lines". Ib'd., 1870, IV, 113.

"Report on the pathological anatomy and histology of the respiratory organs in the pleuro-pneumonia of cattle with six lithographs from photomicrographs." 22 pp. 4to. Washington, 1870. Also published in "Report of Commissioner of Agriculture on Diseases of Cattle in the United States." Government Printing Office, Washington, 1871.

By Dr. Otis: "The Medical and Surgical History of the War of the Rebellion, 1861-65, Part I, Vol. 2, Surgical History." Washington, Government Printing Office, 1870.

"Medical History of the War of the Rebellion." Pen drawings, Vol. I, 82 drawings. Washington, No date. Probably 1870.

By Dr. Edward Curtis: "Medical History of the War of the Rebellion. Water color drawings to illustrate fluxes and fevers." Washington. No date. Probably 1870.

Probably this year appeared (without date) the photographs of fungi, etc. made by Brevet Major Edward Curtis, Asst. Surgeon, U.S.A. No letter and no report.

32 Photographs. 4to. Surgeon General's Office.

Photomicrographs. 3 volumes, 4to. Surgeon General's Office.

Photomicrographs, microscopical series. 4to. Surgeon General's Office.

Ditto 74 Photos. 4to. Surgeon General's Office.

By Drs. Curtis and Woodward: Photomicrographs, microscopical series, 54 photos. 4to. Surgeon General's Office.

F. H. Larrey: Collection des photographies de chirurgie du Musee medical de l'armée americaine, presentee a l'académie imperiale de médecine le 29 mars, 1870. Bull. Acad. de méd., Paris, 1870, XXXV, 237. Also Reprint.

On March 1, 1871, Dr. Schaeffer was appointed Actg. Asst. Surgeon, and continued on duty at the Museum.

On March 14, Dr. Otis stated that up to that date 455 crania and 9 skeletons had been received directly from Army Medical Officers, and 498 crania and 7 skeletons from other persons and institutions.

On March 27, Dr. Otis stated that in a treatise on surgery by von Pitha and Billroth, Vol. I, 29 illustrations were directly taken from specimens in the Army Medical Museum.

The following publications for the year were based more or less on the work done in the Museum:

By Dr. Woodward: February 1. "Memorandum on the Amphipleura pellucida"; with photographs. Published by the Surgeon General's Office.

February 1. "Memorandum on the Surirella gemma"; with photographs. Published by the Surgeon General's Office.

February 22. "Memorandum on the test Podura"; with photographs. Published by the Surgeon General's Office.

"The Army Medical Museum at Washington." Lippincott's Magazine, March, 1871, page 233.

June 9. "Memorandum on Pleurosigma formosum"; with photographs. Published by the Surgeon General's Office.

June 9. "Report on an improved method of photographing histological preparations by sunlight"; with photographs. Published by the Surgeon General's Office.

"On the structure of the Podura scale and certain other test objects and of their representation by photo-micrography"; Month. Microsc. Jour., Lond., 1871, V. 149.

"Additional observations concerning the podura scale." Ibid.,

"On the use of Nobert's plate." Ibid., 1871, VI, 26.

"Remarks on a case of supposed hermaphroditism"; Amer. Jour. Med. Sc., Phila., 1871, LXII, 123.

"Note on the resolution of Amphipleura pellucida by Tolles' immersion 1/5." Month. Microsc. Jour., Lond., 1871, VI, 150.

"The note accompanying three photographs of Degeeria domestica as seen with Mr. Wenham's blackground illumination and a power of 1000 diameters." Ibid., 266.

"Note on the angle of aperture of Tolles' immersion 1/5". Ibid. 290.

By Dr. Otis: "Memorandum of a case of reamputation at the hip with remarks on the operation." Amer. Jour. Med. Sc., Phila., 1871, LXI, page 141.

Circular No. 3, Surgeon General's Office. "Report of surgical cases treated in the army of the United States from 1865 to 1871." (Aug. 17, 1871).

"Photographs of surgical cases and specimens taken at the Army Medical Museum." 5 volumes, 4to. Washington, 1866-71. And "Histories of 296 surgical photographs prepared at the Army Medical Museum, 1866-71."

On January 9, 1872, Dr. W. C. Tilden, Actg. Asst. Surgeon, was assigned to duty in the chemical laboratory attached to the Museum. On August 10, he was relieved from duty and his contract annulled.

Dr. Woodward, in a letter of November 13, 1872, to the Editor of the Evening Star (Washington), said:

"During the last few years it has been a favorite speculation in certain quarters, that epidemic diseases are produced by the presence in the atmosphere of vegetable germs, so minute as to be visible only with the microscope. Considerable labor has been bestowed upon microscopical work in this direction, but the results which have been confidently announced from time to time by enthusiasts have been either contradicted or so materially modified by subsequent observations that the question still remains in the domain of mere speculation. When we consider the number and variety of the organic germs which can be detected in the atmosphere by the microscope at all times, and when we remember that it is precisely those lower forms which have been best studied that are most abundant,

we shall not be surprised that pretenders have found here a fit field for charlatanism, or that many well meaning but incautious persons have fallen into error. Nevertheless I certainly regard the microscopical forms which exist in the atmosphere and their possible influence on man as a proper matter for scientific study, and by way of contributing my mite to the difficult subject I would state that within the last few days I have collected the organic forms from a quantity of the air of a stable in this city, in which were a number of sick horses, and submitted them to the highest power of the microscope, without finding any which are not usually encountered when no epidemic is prevailing, and have also subjected the mucous discharge from the nostrils of several of the horses to the same examination with like negative results."

On December 11, there was a reception at the Museum to Professor Tyndall of England, by the Surgeon General.

Publications in 1872 based more or less on work done in the Museum:

By Dr. Woodward: "Microscopical memoranda for the use of practitioners of medicine." Lens, Chicago, 1872, I, 34, 93, 158, 223.

"On the double markings of Triceratium." Ibid., 100.

"Note on Dr. Barnard's remarks on the examination of Nobert's 19th band." Month. Microsc. Jour., Lond., 1872, VII, 10.

"Reply to Mr. Stodder, 'B', and Mr. Edwin Bicknell"; Letter to Editor. Ibid., 27.

"Note on the resolution of Amphipleura pellucida by certain objectives made by R. and J. Beck and by Wm. Wales." Ibid., 165.

"On the use of monochromatic sunlight as an aid to high power definition". Amer. Naturalist, Salem, 1872, VI, 454.

"Remarks on the desirability of reproducing photographs of scientific objects, and especially of magnified microscopical preparations in a permanent form, by some photo-mechanical method". Abstr. Bull. Phil. Soc., Washington, 1871-4, I, 41.

"The use of Amphipleura pellucida as a test object for high powers". Amer. Naturalist, Salem, 1872, VI, 193.

"Remarks on the Woodbury photo-relief process". Abstr. Bull. Phil. Soc., Washington, 1871-4, I, 57.

"Remarks on the nomenclature of achromatic objectives for the compound microscope". Amer. Jour. Sc. and Arts, New Haven, 1872, III, 406.

"Reply to further remarks on Tolles' 5th and Powell & Leland's immersion 1/16th". Month. Microsc. Jour., London, 1872, VIII, 158.

"Remarks on the resolution of the 19th band of Nobert's plate by certain objectives, especially by a new Tolles' 1/18". Ibid., 227.

"In reply to Dr. Lionel S. Beale." Lens, Chicago, 1872, I, 208.

"Note on the Frustulia saxonica as a test of high power definition." Ibid., 233.

"Report to the Surgeon General on the minute anatomy of two cases of cancer." 1872.

"Letter to the Surgeon General of the Army accompanying seven photographs of some of the external appearances of the mosquito." Published by the Surgeon General's Office. January 5, 1872.

"Another letter in regard to parasites"; with photographs. Published by the Surgeon General's Office, January 10, 1872.

"Letter to the Surgeon General of the Army accompanying seven photographs of the proboscides of certain flies." Published by the Surgeon General's Office. January 15, 1872.

"Letter to the Surgeon General of the Army accompanying eleven miscellaneous photographs of insects and parts of insects." Published by the Surgeon General's Office. January 20, 1872.

"Memorandum on the 19th band test plate of Nobert"; with nine photographs. Published by the Surgeon General's Office. September 29, 1872.

By Dr. Lamb: "A fatal case of congenital tracheo-oesophageal fistula." Phila. Med. Times, 1872-3, III.

On January 18, 1873, Dr. Otis stated that few recent works on military medicine, surgery and hygiene, had omitted to refer largely to the rich and reliable stores of information gathered within the walls of the Museum. A professor of Bonn made the study of the anatomical collection the object of a trip across the Atlantic.

The following is the story of two bullets said to have met in mid air and fused together:- Dr. A. A. Woodhull, U.S.A., April 19, 1871, wrote that he had just "stumbled" on the true history of the bullets. The fused missile was picked up by a sharpshooter of the 1st Mass., attached to the 19th Mass., and handed to a Captain of the 1st Minn., at the time the troops were deployed as skirmishers in front of a redoubt of the Second Corps, before Petersburg, Va., (1864). The specimen was given by the Captain mentioned to Lt. Col. Edmund Rice, 19th Mass., commanding that part of the line. Rice in 1871, then 1st Lieut. 5th U.S. Infantry, stated that he had preserved the specimen, that it was never out of his possession, and was photographed once only, and by Black of Boston, and said that it was the same specimen represented by the photograph in the Army Medical Museum. The bullet was never in possession of General Grant.

January 21, 1873, in a letter to the Surgeon General, Rice stated that the fused missile was found at Petersburg in 1864 by a man of his command who gave it to Rice. The specimen was shown to many army men and was photographed in Boston in 1864, a photograph identical with that at the Museum.

January 25, 1873, General C. H. Crane made this indorsement on Rice's letter: "Dr. Brinton had the bullets from which was taken the photograph in the Museum. They were said to have been picked up on the battle-field of Belmont and handed to General Grant who gave them to Brinton." Rice's letter with the indorsement was

sent to Dr. Otis who replied February 15. In the meantime Otis asked Brinton about the matter and Brinton (Feb. 8) replied that he had found the bullet and compared it with the woodcut that had been made at the Museum from the Museum photograph. The woodcut did not represent Brinton's specimen. Brinton did not think that he had ever had a photograph of his specimen made. He spoke of his leaving the Museum in partibus infidelium. He had forgotten the history of the bullet, but had the impression that it was not from Shiloh or Belmont, and was long before the Petersburg battle; was picked up on some Western field. On February 15, Brinton mailed the bullet to Otis. On second thought, he opined that perhaps Dr. William Thomson of Philadelphia had photographed the specimen. Brinton had no recollection of ever having shown it to General Grant.

Dr. Otis' letter to Rice stated that he (Otis) had on his table at the time the bullet from which a drawing was made, and then a photograph in the Museum had been made from the drawing. General Grant remembered the fact that he had seen the specimen.

The Rice specimen is also mentioned by W. E. Waters, Asst. Surg., U.S.A., in a letter November 22, 1872, Fort Leavenworth to _____? which was filed in the Division of Surgical Records, which Division was then under the charge of Dr. Otis. In his letter Waters says that he had seen the fused bullet a photograph of which had been shown him by General Crane "a few years ago."

There is no "fused" bullet in the Museum but there is a negative, No. 4335 of such a bullet, probably that mentioned above

by Drs. Crane and Otis. There is also a photograph, No. 1800, received in May, 1886, from a Mr. Sharp of Washington, Pa., where the photograph was made by S. E. Eggers. It shows three views of a "fused" bullet said to have been picked up by David Cooper of the 16th Penna. Cav., at Fort Sedgwick, Petersburg, Virginia. No date is given and no further information. The mention of Petersburg naturally suggests some connection with the Rice bullet.

On February 29, 1873, Dr. William M. Mew, Actg. Asst. Surgeon, was assigned to duty in the Chemical Laboratory attached to the Museum.

The following publications in 1873, by Dr. Woodward, were based on work done in the Museum:

"Remarks on the aperture of object-glasses"; Month. Microsc. Jour., Lond., 1873, IX, 268.

"Nobert's tests and Mr. Webb. Letter to members of the Quekett Microscopical Club"; Journal Quekett Microsc. Club, Lond., 1872-74, III, 198.

"On immersion objectives of greater aperture than corresponds to the maximum possible for dry objectives"; Month. Microsc. Jour., Lond., 1873, X, 210.

"On Webb's test and other fine writing on glass"; Lens, Chicago, 1873, II, 225.

"On the structure of cancerous tumors and the mode in which adjacent parts are invaded"; (First Toner lecture); Smithsonian Collections, No. 266, 35 pages, 4to. 74 microphotographs.

In January, 1874, the number of visitors to the Museum who registered their names was 3737.

On February 28, Dr. Otis interviewed a Philadelphia instrument maker in regard to obtaining for the Museum, instruments of

historical interest. Some were bought. This was an initial movement in a direction that was followed up later in regard to ophthalmoscopes, stethoscopes, hypodermic syringes, microscopes, etc.

On May 9, ethnological specimens were sent to Professor Jeffries Wyman, Director of the Peabody Museum at Cambridge, Mass.

On July 1, the contract of Dr. Edwin M. Schaeffer, Actg. Asst. Surgeon, Microscopist at Army Medical Museum, was annulled, and also, that of Dr. John Stearns. These officers were relieved from duty at the Museum.

On August 31, Dr. Irving C. Rosse was relieved from duty at the Museum.

During July, a two story building in the alley running East from the Museum was bought for Museum purposes. The first floor was fitted up for the use of the carpenter, and a distilling apparatus was placed in the second story for redistilling the waste alcohol.

Dr. John Eric Erichsen, of London, in the autumn of 1874 visited the United States and on his return to England gave a lecture at the University College Hospital, London, November 9, 1874, in which he said (see Lancet, London, 1874, II, page 720):

"There is one Museum which is so unique, so admirably arranged, and so interesting, that I must direct your attention to it for a few minutes. It is the Museum of the Army Medical Department at Washington. This magnificent collection, illustrating not only every possible variety of gunshot and arrow injury, but also those diseases which are more fatal than the bullet to an army in the field or in camp, has under the able superintendence of Surgeon General Barnes, and of Drs. Otis and Woodward, been most admirably

arranged and catalogued. It occupies a building that has a melancholy interest connected with it, as being the theater in which President Lincoln was assassinated by Booth in 1865. The collection itself is well known in Europe through the medium of those beautifully illustrated and ably collated medical histories of the great war of the Rebellion which have been published under the superintendence of the Medical Department of the United States Army. Many of the specimens in this Museum are quite unique. I would especially refer to a series illustrating splintering of the inner table of the cranium without fracture of the external table, consequent on contusion of the skull; the splitting of conical bullets against sharp edges of bone; a collection of foreign bodies including arrow heads, forming the nuclei of calculi extracted from the bladder; and a remarkable series of specimens of injuries of the bones inflicted by arrow wounds in Indian warfare. To the physician the collection of diseases of the large and small intestine resulting from dysentery, diarrhoea, camp fevers, typho-malaria, etc. is most interesting. The preparations have been admirably put up by Dr. Woodward. In this collection will be found some very interesting specimens of resection of joints and bones after gunshot injury. I saw one patient [John F. Reardon] in whom the head of the humerus and several inches of the shaft, in all seven inches of the bone, had been excised. He was now a porter [a messenger] in the Museum, had a most useful and well developed forearm and hand, serviceable for every purpose. There was not only the preparation but the living example of this triumph of conservative surgery. The case illustrates the important fact that the upper end of the humerus may be resected below the insertion of the deltoid and yet a useful limb be left. I saw another case of an officer who had lost about four inches of the shaft of the humerus, and in whom the limb was equally useful. In fact American surgeons are very skilful in the management of resections."

The following publications in 1874, by Dr. Woodward, were based on work done at the Museum:

"On some photographs of microscopic writing. Letter to Mr. John E. Ingpen." Jour. Quekett Microsc. Club, Lond., 1872-74, III, 228.

"Further remarks on immersion apertures". Month. Microsc. Jour., Lond., 1874, XI, 119.

"Note on the microscopical slides of Dr. Otto Barth; illustration of pathological anatomy." Letter. Med. Record, N.Y., 1874, IX, 381.

"Final remarks on immersion apertures"; accompanied by paper of R. Keith. Month. Microsc. Jour., 1874, XII, 125.

"Note on the microscopical slides of Dr. Otto Barth; illustration of pathological anatomy." Letter. Med. Record, N.Y., 1874, IX, 381.

"Final remarks on immersion apertures"; accompanied by paper of R. Keith. Month. Microsc. Jour., 1874, XII, 125.

"Spontaneous rupture of the aorta in individuals whose aortic coats present but little evidence of disease." Abstract in Trans. Med. Soc. Dist. Columbia, Washington, 1874, I, 54.

On January 1, 1875, there was a fire in a frame outbuilding on the South side of the Museum. It extended to the Museum building. Dr. D. S. Lamb happened to be in the Museum building at the time, discovered the fire and gave the alarm. The fire was extinguished mainly by the Superintendent of the building, Mr. Alfred Gawler, and the orderly on duty. There was some damage to the balcony of the photograph room. If the fire had gained headway, much damage might have been done because of the inflammable character of the contents of the building.

In February, there were 3738 visitors registered at the Museum.

The following order was issued in regard to transportation of specimens to the Museum by Quartermasters:

WAR DEPARTMENT,

SURGEON GENERAL'S OFFICE,

Washington, April 13, 1875.

Circular Orders,)
No. 2.)

The following General Order from the Adjutant General's Office is published for the information of Medical Officers:

General Orders)
)
No. 49.)

WAR DEPARTMENT,
Adjutant General's Office,
Washington, April 8, 1875.

The Quartermaster's Department is authorized to transport to the Medical Museum at Washington such objects as may be turned over to its officers for that purpose at any military post or station by the officers of the Medical Department.

By Order of the Secretary of War:

E. D. TOWNSEND,
Adjutant General.

Medical Officers in turning over packages to the Quartermaster's Department for transportation will take receipts in duplicate, and will forward one of the receipts to the Surgeon General. All packages for the Museum should be plainly marked "Surgeon General, U. S. A., Washington, D. C.," with "Army Medical Museum" inscribed in the lower left hand corner.

By Order of the Surgeon General:

C. H. Crane,

Assistant Surgeon General,
U. S. Army.

On September 9, a box of negatives that had been left at the Museum in 1862 was accidentally brought to light.

Preparations were made this year for a Museum exhibit at the Exposition to be held at Philadelphia in 1876.

The following publications in 1875, by Dr. Woodward, were based on work done at the Museum.

September 17. "Report of the Commission of the National Academy of Sciences appointed at the request of the Honorable the Secretary of the Treasury to examine into the component parts of certain fabrics known in commerce as calf-hair goods." (The examination was made mainly by Dr. Woodward. Dr. John LeConte was also on the Commission.) Published in the Bulletin of the National Association of Wool Manufacturers, Washington, D.C., Sept, 17, 1875. The microscopic and photographic work was done at the Museum.

"On the similarity between the red blood corpuscles of man and those of other mammals, especially the dog, considered in connection with the diagnosis of blood stains in criminal cases." Amer. Jour. Med. Sc., Phila., 1875, LXIX, 151.

"Note on the markings of Frustulia saxonica." Month. Microsc. Jour., Lond., 1875, XIV, 274; also Bull. Phil. Soc., Washington, 1874-8, II, 60.

"Nobert's test plates." (In Knight's American Mechanical Dictionary, 1875, II, 1531.)

By Dr. Otis: "Report on a plan for transporting wounded soldiers by railway in times of war." 1875, Surgeon General's Office.

In January, 1876, at the suggestion of Prof. Baird, of the Smithsonian Institution, an order for jars was given to the Dorflinger Co., White Mills, Pa.

On March 10, Dr. Woodward stated that, up to that date, the Museum had not had occasion to buy alcohol. It was still using alcohol distilled from the whiskey received from the Medical Purveyor at the close of the Civil War.

On April 18, as showing the variety of work required of the medical officers on duty at the Museum, Dr. Woodward stated to Prof. Henry, President of the National Academy of Sciences, that for the year ending June 30, 1875, under Dr. Woodward's direction, 54 specimens had been added to the Medical Section, 537 to the Microscopical Section, and 118 to that of Comparative Anatomy. He had also been engaged on the preparation of the second volume of the Medical History of the War of 1861-65. He had also undertaken special studies in microscopy, an investigation into the distinguishing characters of the fibers of wool and calf-hair, illustrated by a series of microphotographs; a series of investigations with regard to the diffraction phenomena observed in the field of the

microscope which may give rise to erroneous views of minute structure; work had also been done in preparing a series of microphotographs of the blood of man and of those mammals whose corpuscles most closely approximate those of human blood in diameter. He had also to administer the Record and Pension Division. The amount of work in this division was shown by the fact that information in regard to claims for pensions had been furnished to the proper authorities during the year in 15542 cases. It might be added that there was besides a multitude of questions from correspondents to be answered on a great variety of subjects. Dr. Woodward was also making preparations for the exhibit of the Medical Department of the Army at the Exposition of 1876 at Philadelphia. He had charge of this exhibit, which included, so far as the Museum was concerned, a number of microscopical and pathological specimens, models of hospitals, ambulances, litters, hospital ships, a hospital train and medicine wagons. Dr. H. C. Yarrow represented the Museum.

On July 10, Dr. Woodward stated that the vegetable germ theory of disease was not in his opinion a theory, but only a hypothesis resting on most imperfect and unsatisfactory data. It did not satisfy his mind and the more he studied the subject the more he felt that consequences had been mistaken for causes.

On August 31, Dr. Woodward stated that the Persian insect powder had been found to be the best thing to clear the bone specimens of the larvae of the Anthrenus museorum.

Dr. Meusel of Gotha, Germany, (Correspbl. d. allg. ärtzl. Vereins von Thüringen, 1876, V, 81-96), in an analysis of the catalogue of the Museum, said:

"The riches contained in the catalogue are truly imposing. The Museum, in view of its aim and origin, is very rich in those chapters which are of specific interest to the military physician. The art and manner with which the material was collected gives us a high opinion of our colleagues, who in the midst of the bustle of war, have brought it together scientifically. It gives us also a high opinion of the organization of the care of the American Army, if we recall how many conditions must be fulfilled, in order to give enough time and physicians, to prepare after a battle so many careful specimens, as, e.g., the big list of mortal wounds. They lost no time in preparing specimens of interest and instruction to the observer. The abstracts of case histories are brief and clear, the numerous illustrations excellent, and the aim to give complete information concerning the course of the disease and the result of an operation, deserves the greatest recognition. The value of many surgical procedures will become established after years. The classification is distinct and the description of individual specimens is the work of endless endeavor and of rich knowledge and experience.

"But besides the rich contents of the catalogue and its excellent preparation, the circumstance concerning it that is most startling is namely, that we see for the first time, in effect, a printed catalogue of a Museum. Through the fact that everybody is able to provide himself with a printed catalogue and that he may orient himself at home as to what he wishes to study, the Museum becomes a common possession of all physicians, and ceases to be the private treasure of some academician, difficult of access."

"Philadelphia Exposition. Exhibit of Medical Department of the Army. Among the pamphlets issued in connection with this exhibit were the following that related to the medical side of the Museum:

No. 2. Description of models of hospital cars; No. 3. Description of models of hospitals; No. 4. Description of models of hospital steam vessels; No. 9. List of selected microscopical preparations from the Museum; No. 10. Description of the selected specimens from the Medical Section of the Museum. Also the following reproductions of photographs by Dr. Woodward:

Photomicrographs of Frustula saxonica, Navicula rhomboides, body scales of the mosquito and gnat.

Miscellaneous photomicrographs, diatoms, etc.

Photomicrographs, Fibres of wool, calf hair, etc.

Photomicrographs of Pleurosigma angulatum and formosum, Surirella gemma, and Podura scales.

Photomicrographs by Prof. J. W. Draper, New York, 1851-2.

Photomicrographs; Blood corpuscles of man, dog, etc.

Photomicrographs; Histology of minute bloodvessels and other histological photomicrographs.

Photomicrographs; Mosquito, parasites, proboscides, etc.

Photomicrographs of Nobert's 19th band plate, Webb's test, Nobert's wave plate, Amphipleura pellucida, etc.

Photomicrographs; Magnesium, Electric, Calcium lights and Sunlight.

Photomicrographs; Cancer.

Photographs illustrating rare books in the National Medical Library; two volumes.

The following publications in 1876 were based more or less on work done at the Museum:

By Dr. Woodward: "Histology"; Article, 37 columns, 33 woodcuts. Johnson's New Universal Cyclopedia, 1876, II, 931-949.

"On the markings of the body scale of the English gnat and the American mosquito." Month. Microsc. Jour., Lond., 1876, XV, 253.

"Mr. Brown's paper on Nobert's lines." Ibid., XVI, 101.

"The application of photography to micrometry with special reference to the micrometry of blood in criminal cases." Trans. Amer. Med. Assoc., 1876, XXVII, 303. Also Phila. Med. Times, 1875-6, VI, 457. Also, Reprint.

"Typho-malarial fever. Is it a special type of fever." Trans. Internat. Med. Cong., Phila., 1876, 305.

"The Medical Staff of the United States Army and its scientific work." Ibid., 286.

April 5. "Note on the markings of Navicula rhomboides. With photographs by Dr. Woodward." Month. Microsc. Jour., Lond., 1876, XV, 209.

Photographs prepared at the Army Medical Museum for the International Exhibition of 1876, 4to. Washington, 1876.

By W. Thomson and W. F. Norris: Photomicrographs. Washington, 1876.

By Dr. Otis: "Description of the United States Army Medicine transport cart. Model of 1876." Prepared in conjunction with Brevet Lt. Col. D. L. Huntington, Asst. Surg., U.S.A. International Exhibition of 1876.

"Checklist of Preparations and Objects in the Section of Human Anatomy of the United States Army Medical Museum." By George A? Otis, Assistant Surgeon, U.S. Army, Curator of the Army Medical Museum, Washington, D.C., 1876. 8 vo. pp. 135.

Dr. Otis in the check list says:

"The two series of collections that gave the Museum its distinctive character, viz., the surgical series of illustrations of the immediate and remote effects of injuries by war weapons and the operations incident to such injuries, and the medical specimens exemplifying the pathology of camp diseases, accumulated rapidly during the war; but few acquisitions were made of anatomical objects or of specimens illustrating subjects collateral to military medicine. Soon however many military officers at remote posts who had infrequent opportunities of contributing to the pathological material of the Museum, but earnestly shared in the general desire of members of the corps to promote its welfare, forwarded donations of Indian crania, of specimens of natural history, and of objects of ethnological or archaeological interest. The minerals, fossils, stone implements, pottery, etc. and the Indian curiosities, were exchanged with other Museums, for objects more immediately connected with the purposes of the Army Medical Museum. Botanical specimens and the greater part of the contributions in natural history, including all pertaining to the invertebrata, were also held for exchange; but skulls or skeletons of mammals, birds, reptiles, amphibians, and fishes were retained, and formed the nucleus of the fifth section of the Museum, or section of Comparative Anatomy, of which a catalogue is given in the first of this series of pamphlets for the representation of the Army Medical Department at the International Exhibition of 1876. In addition to the anatomical objects above referred to, a number of elaborate preparations of the human skeleton in its various stages of development and of demonstrations of the muscles, bloodvessels, nerves, lymphatics, viscera and organs of special sense, were purchased in Paris for the convenience of examining boards or of students, and for other purposes of reference, and a number of similar specimens were prepared at the Museum. Soon afterwards the acquisition of the Gibson cabinet added many anatomical preparations, natural or artificial, and the exploration of tumuli by Surg. E. Swift, Dr. A. I. Comfort and others greatly augmented the collection of skeletons and crania. It was now decided to group all these objects in a distinct section of the Museum to be designated section IV, including two series, one relating more especially to descriptive and topographical anatomy, the other to ethnology."

Also by Dr. Otis: "The Medical and Surgical History of the War of the Rebellion. Part II, Volume II, Surgical History." Washington, Government Printing Office, 1876. 1044 pp., 35 plates, 747 figures.

By Dr. H. C. Yarrow, Contract Surgeon: "List of skeletons and crania in the section of Comparative Anatomy of the U.S. Army Medical Museum, Washington, D.C." 1876, 8vo. pp. 52.

By Dr. Lamb: "General tuberculosis." Trans. Med. Soc. D.C., 1876, III, 59.

"Case of cancer of abdominal viscera." Ibid., 1877, IV, 86.

Dr. Woodward in his preface to the "List of skeletons and crania in the section of Comparative Anatomy of the U.S.A. Medical Museum, for use during the International Exhibition of 1876, in connection with the representation of the Medical Department, U.S. Army", says:

"The list of the skeletons and crania in the section of Comparative Anatomy of the U.S. Army Medical Museum, was prepared by Dr. H. C. Yarrow and is intended for distribution during the Centennial Exhibition among naturalists and others interested in comparative anatomy, for the purpose of showing the deficiencies of our collection, and soliciting contributions.

"The collection constitutes one section of the Army Medical Museum which at present is divided into six sections, as follows:

"In charge of Asst. Surgeon G. A. Otis, U.S.A., Curator, Surgical Section, 6539 specimens; Anatomical section, 1254 specimens; Miscellaneous section, 240 specimens.

"In charge of Asst. Surgeon J. J. Woodward, U.S.A., Medical section, 1279 specimens; Microscopical section, 7275 specimens; Comparative Anatomy section, 1522 specimens.

"The Army Medical Museum was created primarily for the purpose of preserving specimens illustrative of the wounds and diseases which produce death and disability during war, with the view of thereby illustrating the study of methods for diminishing mortality and alleviating suffering among soldiers. It is now the desire of the Surgeon General that so far as the means placed at his disposal will permit, the collection shall be extended so as to embrace all forms of injuries and diseases, so that eventually it shall become a general pathological Museum, accessible for study to all medical men who are prosecuting original inquiries. Of the great usefulness of such a collection it is unnecessary here to speak, or to point out how vain all hopes have proved that any large collection of this kind can be created, except with the aid and support of Government. A cabinet of comparative anatomy furnishes the means for useful collateral studies, subordinate to the general purposes of a pathological museum; hence such cabinets are found in connection with most of the great pathological collections of Europe, and one has been commenced at the Army Medical Museum.

"The appropriations for the support of the Museum have been hitherto too limited to permit the expenditure of any considerable sum on the collection of comparative anatomy. The specimens enumerated in the following list were for the most part collected by medical and other officers of the Army on duty at frontier posts. For the present, any increase of the collection can only be expected from such donations, which will thankfully be received from Army

officers or others or from exchanges of duplicate specimens, which, however, as yet are only possible to a very limited extent.

"Specimens presented need not be thoroughly cleaned and mounted. This laborious work is done in the Museum by Dr. F. Schafhirt, by whom the greater part of the specimens enumerated in the following list were prepared. It will be sufficient in the case of large skeletons or crania if the flesh is roughly dissected from bone, and the viscera, brain, etc., removed. The preparation thus prepared can be packed in a mixture of sawdust and salt or simply dried for transportation. Small animals are best preserved in alcohol, in which case an incision should be made along the middle line of the abdomen to give the alcohol access to the viscera."

On April 10, 1877, Dr. B. F. Craig, the chemist, died.

In May, Dr. Otis had a stroke of paralysis.

In June 30, Congress had failed to pass the Army Appropriation bill, that is to say, President Hayes had vetoed it and Congress failed to pass it over the veto. As a consequence, the medical officers at the Museum had to make some arrangements to tide them over until the next session of Congress.

The following publications, 1877, were based more or less on work done in the Museum:

By Dr. Woodward: "Dysentery and bacteria." Address before Alumni of University of Pennsylvania, March 10, 1877. Printed by Collins, Philadelphia, 1878.

"A simple device for the illumination of balsam mounted objects for examination with certain immersion objectives whose balsam angle is 90 degrees or upwards." Abstr. Bull. Phil. Soc. Washington, 1874-8, II, 126.

"Brief rejoinder to some recent articles by Dr. Roberts Bartholow." Cincin. Med. News, 1877, VI, 743.

By Dr. Otis; "Report on the transport of sick and wounded by pack animals." Published as Circular No. 9, Surgeon General's Office, 1877.

"Contributions from the Army Medical Museum." Boston Med. & Surg. Jour., 1877, XCVI, 361.

On May 15, 1878, Dr. Otis stated that Dr. Fred Schafhirt of the Museum had been in the service of Blumenbach in Europe and

Samuel George Morton in Philadelphia as a preparer of specimens.

On May 25, a General Order, No. 329, Adjutant General's Office, was issued, providing that all Army Officers could have specimens for the Museum transported by the Quartermaster's Department.

On October 28, specimens of so-called Rocky Mountain fever received at the Museum from Dr. John V. R. Hoff, U.S.A., Fort Fetterman, Wyoming Territory, showed the lesions of typhoid fever.

The following publications (1878) were based on Museum work:

By Dr. Woodward: "Further remarks on a simple device for the illumination of balsam-mounted objects for examination with immersion objectives, whose balsam angle is 90 degrees or upwards." Jour. Roy. Microsc. Soc., London, 1878, I, 246.

"On the apertometer of Prof. E. Abbe of Jena." Abstr. Bull. Phil. Soc., Washington, 1878, III, 18.

"On a standard for micrometry." Abstract, Ibid., 22.

"On the oil immersion objectives of Zeiss, and on convenient methods of oblique illumination for these and similar objectives." Ibid., 25.

"Sur la lumière électrique et la lumière au magnesium appliqués à la photo-micrographie." Bull. Soc. belge. de micr., 1878, LXI.

By Dr. Otis: "Notes on contributions to the Army Medical Museum by civil practitioners." Boston Med. & Surg. Jour., 1878, XCVIII, 163.

On March 8, 1879, Dr. Otis, in a letter to Dr. W. W. Keen, Philadelphia, stated that the negatives of the photographs taken by Brady, of landscapes, battle scenes, portraits of notables, etc., and bought by the U. S. Government, were stored in the cellar of the Adjutant General's Office. William Bell, of the Museum photograph gallery, went with Dr. R. B. Bontecou over many battle fields of Virginia in 1865, and took photographs. Mr. Barnard,

who bought the negatives of Brady for the War Department, said that they were catalogued for reference, and were in charge of Capt. R. N. Scott who was supervising the compilation of the Rebellion Records. (These Brady negatives were afterwards used in the publication of the "Photographic History of the War", published by the Review of Reviews, New York City, in 10 volumes).

On April 16, the question of acquiring the Brady negatives for the Museum was considered. Dr. Woodward did not think them desirable.

On May 20, a specimen was received at the Museum from the famous case of ligation of innominate artery, common carotid, vertebral and internal mammary, for aneurysm of the subclavian artery, by Dr. A. W. Smyth of New Orleans, in 1864. The man lived afterwards eleven years, dying in 1875. Dr. Edmond Souchon, of New Orleans, made the post mortem examination. Prof. T. G. Richardson of the University of Louisiana contributed the specimen.

The following publications in 1879 were based more or less on Museum work:

By Dr. Woodward: "The oblique illuminator, an apparatus for obtaining oblique illumination at definite angles." Am. Quart. Microsc. Jour., 1879, N.Y., I, 268.

"Description of a new apertometer." Ibid., 272.

"Observations suggested by the study of Amphipleura pellucida mounted in Canada balsam, by lamplight and sunlight, with various objectives." Jour. Roy. Microsc. Soc., Lond., 1879, II, 663.

"Note on Abbe's experiment on Pleurosigma angulatum." Ibid., 675.

"The Medical and Surgical History of the War of the Rebellion, Part II, Vol. 1. Medical History, being the second medical volume." Washington, Government Printing Office, 869 pp. 4to. 1879. 41 plates, 4 photo-relief cuts, 2 <u>facsimiles</u>.

In May, 1880, Dr. Woodward was not in good health and on May 20 left for Europe.

The following appeared in the Report of the Surgeon General for 1879-80:

"I would respectfully invite attention to the overcrowding and unsafe condition of the building Nos. 509-11 Tenth Street, N.W., now occupied by the Record and Pension Division, the Division of Surgical Records and the Library of this office, as well as by the Army Medical Museum. By the continued growth of these valuable collections the space available for their preservation has become quite inadequate, not merely for their proper display, but even for satisfactory storage. In the building now occupied these collections are continually exposed to the danger of destruction by fire. This building is surrounded by inflammable houses and sheds on private property, over which the officer in charge can of course exercise no control whatever, and which are in immediate contact with its North and South wings. These wings are not fireproof and although the main building is provided with three fireproof floors its roof is not fireproof.

"The sad experience of the Smithsonian Institution in 1865 and of the Patent Office in 1877 has demonstrated that the perils to which collections preserved in such a building are exposed in case of fire, are not materially diminished by the fireproof floors beneath; but in both cases referred to, the extent of the damage was limited to the upper story by the substantial character of the walls and floors. The walls of the Tenth Street building are not only weak but much out of plumb, so that it is to be feared that destruction by fire of the roof would not only involve the whole Museum collection in the third story, but by the fall of at least a portion of the walls the destruction of the contents of the lower stories, including the library and the records, would result. The most probable source of danger is from accidental fire in the adjoining private property. Such a fire actually occurred in January, 1875, but was fortunately subdued by the exertions of the employees of our building before damage was done.

"I therefore earnestly recommend an appropriation for a new fireproof building adequate to the present needs, and reasonable future expansion of all the collections now stored in the unsafe building on Tenth Street. Such a building should be absolutely fireproof, but no expenditure for architectural display is required. I find on inquiry that a suitable structure can be erected at a cost not to exceed two hundred and fifty thousand dollars."

On October 18, 1880, Dr. Fred Schafhirt, the anatomist, died.

The following publications in 1880 were more or less based on work done at the Museum:

By Dr. Woodward: "Memorandum on the amplifiers of Zeiss." Amer. Month. Microsc. Jour., N.Y., 1880, I, 5.

"The size of the blood corpuscle." Med. Record, N.Y., 1880, XVII, 131.

"Remarks on the pathological histology of yellow fever." Supplement No. 4 to National Board of Health Bull., Washington, 1880.

"Riddell's binocular microscopes." A historical notice. (Abstract) Amer. Month. Microsc. Jour., N.Y., 1880, I, 221.

By Dr. Otis: June 1. "List of the specimens in the Anatomical Section of the United States Army Medical Museum, by George A. Otis, Surgeon, U.S.A., Curator of the Army Medical Museum." Washington, D.C., 1880. 4to. pp. 194. (This was the second edition; the first in 1876).

This edition contained additional specimens and also a statement from the Surgeon General dated January 18, 1873, in which he said:

"The medical officers in the army have collected a much larger series of American skulls than have ever before been available for study. The collection embraces many ancient crania from caves and tumuli, from Greenland and Alaska to Florida and Arizona, and specimens from the majority of the existing tribes of Indians, and of the extinct tribes of the historic period. The skulls have been carefully measured and drawings made of them. The French Government through its legation here (Washington) after making repeated application for the tables of cranial measurements, employed an artist to make casts and take photographs of a series of typical skulls, and a professor from Bonn made the study of the collection the object of a trip across the Atlantic."

On January 1, 1881, Dr. Woodward broke his leg; his horse slipped and fell on the Doctor. During convalescence an intercurrent pleurisy set in.

On February 23, Dr. Otis died. An obituary notice was written by Dr. Woodward and published in Am. Jour. Med. Sc., 1881, LXXXII, page 278; also in Trans. Am. Med. Assoc., Phila., 1881, XXXII,

pp. 529-34; also an obituary, Surgeon General's Office, 1881.

On March 21, Dr. D. L. Huntington, U.S.A., was acting as Curator in place of Otis. He was officially appointed Curator October 1, 1881.

On June 3, Dr. R. W. Shufeldt, Asst. Surg., U.S.A., was assigned to duty at the Museum in connection with the section of Comparative Anatomy.

On July 2, PresidentGarfield was shot and died September 19. During his illness, Surgeon General J. K. Barnes and also Dr. Woodward, were called in attendance and both, especially Woodward, gave much time to the attendance. After Garfield's death, examination was made by Dr. D. S. Lamb, practically under direction of Dr. Woodward, Surgeon General Barnes and others being present. Two specimens were obtained; the fractured vertebrae, No. 10800, and the aneurism of splenic artery, No. 10801. (See the "Official record of the post mortem examination of President James A. Garfield, signed by Drs. D. W. Bliss, J. K. Barnes, J. J. Woodward, Robert Reyburn and D. S. Lamb." Am. Jour. Med. Sc., 1881, LXXXII, 583-590. Also Reprint.)

Publication by Dr. Woodward, based on Museum work:
"Pseudo-polypi of the colon; an anomalous result of follicular ulceration." Ibid., 1881, LXXXI, 142-155.

On January 6, 1882, the Secretary of War, Robert T. Lincoln, recommended to the President, and on January 19, President Arthur recommended to Congress a new building for the Museum. The matter was referred to the House Committee on Public Buildings and Grounds.

On February 11, Dr. Woodward, being in ppor health, left New York for a vacation abroad. He never returned to the Museum.

On March 18, Dr. Shufeldt made a report on the condition of the Section of Comparative Anatomy. He criticized the preparation work that had been done at the Museum and recommended that many of the specimens be sold or exchanged as they were "little better than garbage."

On May 1, Dr. Shufeldt was relieved from duty at the Museum.

On June 30, Charles J. Guiteau, the assassin of President Garfield, was executed. Dr. Lamb, assisted by Drs. J. F. Hartigan and Z. T. Sowers, and by Dr. J. C. McConnell and Ernest Schafhirt of the Museum, made an autopsy and obtained a much hypertrophied spleen, No. 9076, Path. Series; and the skeleton, Nos. 3425 and 3425A, Anat. Series.

Publication by Dr. Lamb, based mainly on work done at the Museum:

"Report of the post mortem examination of the body of Chas. J. Guiteau." Med. News, Phila., 1882, XLI, 13. Also reprint.

On February 28, 1883, the Committee on Public Buildings and Grounds of the House of Representatives through Mr. Shallenberger made a favorable report on the proposed new Museum building. (Report No. 1995) with an amended bill (H.R. 7681) which provided for three doorways on the South side and some minor differences in internal arrangements.

April 5. Death of Surgeon General J. K. Barnes (Retired). An obituary notice was published by the Surgeon General's Office, April 28.

June 5 to 8. A memorial was signed by Austin Flint, President of the American Medical Association, and Drs. Samuel D. Gross of Philadelphia, D. W. Yandell of Louisville, Kentucky. T. G. Richardson of New Orleans, and H. F. Campbell of Augusta, Georgia, favoring a new building for the Museum. The memorial was adopted by the American Medical Association.

On August 15, a series of articles, foods, medicines, drum, rattle, wampum, pipes, tobacco pouch, arrows, etc. used by American Indians, was sent from the Museum to Prof. Jeffries Wyman of the Peabody Museum at Cambridge, Mass.

On September 12, the illness of Dr. Woodward was such that he was unable to reply to official correspondence. (So stated by Dr. Huntington in a letter.)

October 10. Death of Surgeon General C. H. Crane. An obituary notice was published by the Surgeon General's Office, October 24.

On December 5, Senator Hawley introduced a bill in the Senate (S 403) in regard to a new Museum building. Referred to Committee on Public Buildings and Grounds. In view of opposition that had developed to the new building, petitions and memorials were now being sent to congressmen by medical societies throughout the country.

On December 10, a new bill (H.R.48) was introduced into the House by General Rosecrans; it was practically the same as 7681 of the previous session; referred as usual. It provided for an expenditure of $300,000., the plans and specifications to be

prepared by the Surgeon General, and to be approved by the Architect of the Capital Extension.

On December 13, Secretary of War Lincoln, and on December 17, President Arthur renewed their recommendations for a new Museum building. Senate Document No. 12 contained a letter from Surgeon General Robert Murray of December 3, and also a letter from Drs. S. D. Gross, Austin Flint, and O. W. Holmes to the President of the American Medical Association; also a copy of resolutions.

On December 15, Dr. Shufeldt resumed his work at the Museum in Comparative Anatomy.

On December 28, the following order was issued:

War Department,
Surgeon General's Office,

Washington, D.C., December 28, 1883.

Orders:

Major D. L. Huntington, Surgeon, U.S. Army, is hereby relieved from duty as Curator of the Army Medical Museum, and assigned as Assistant to the Surgeon General.

The Army Medical Museum and the Library of the Surgeon General's Office are consolidated into one division, to be known as the MUSEUM AND LIBRARY DIVISION of the Surgeon General's Office. Major John S. Billings, Surgeon, U.S. Army, is assigned to duty in charge of this division, as Curator of the Army Medical Museum and Librarian of the Surgeon General's Office. Mr. C. J. Myers, Clerk class four, will report to Surgeon Billings for duty in this division.

The "Division of Surgical Records" is discontinued. The records, books and files pertaining thereto are transferred to the Record and Pension Division, of which they will hereafter form a part.

To the Museum and Library Division is assigned the use of the second and third floors of the building on Tenth Street, to which will be transferred, so far as may be possible, all of the books, etc., belonging to the Library, together with the clerks and other employees engaged in Library work.

Surgeon Billings and Assistant Surgeon Pope are charged with the supervision of the removal of records, books, files and other property, as well as the assignment of rooms and other details necessary to carry this order into effect.

(Signed) R. Murray,
Surgeon General, U.S. Army.

The following appeared in the Report of the Surgeon General, 1882-3:

"In 1866 a Catalogue of the Army Medical Museum was prepared by this office and printed at the Government Printing Office. The Museum collection contained at that time 4719 specimens in the Surgical Section, 877 in the Medical and 2120 in the Microscopical, a total of 7716 specimens. Since then the number of surgical specimens has been increased to 7265, of medical specimens to 1705, and of microscopical specimens to 8881; and three new sections have been added to the collection, viz., an Anatomical section containing 2143, a section of Comparative Anatomy containing 2481, and a Miscellaneous section containing 727 specimens; making a total of 23202 specimens now in the Museum collection, of which less than one third are described in the catalogue of 1866.

"A manuscript catalogue is now in course of preparation which will include a description of all specimens in the Museum at the present time. As such a catalogue is indispensable to the practical usefulness of so valuable a collection, it is hoped that authority may be granted by Congress for the printing and binding of this work at the Government Printing Office."

The following publications were based more or less on work done at the Museum:

By Drs. Otis and D. L. Huntington: "Medical and Surgical History of the War of the Rebellion, Part III, Vol. 2. Surgical History." Washington, 1883. 1015 pp., 41 plates, 510 figures.

By Dr. Lamb: "Case of acute oedema of glottis." Maryland Med. Jour., Balt., 1883-4, x, 870.

"Case of fractured clavicle and ribs." Ibid.

"Case of united fracture through great trochanter of woman age 85." Ibid.

On January 5, 1884, Dr. Shufeldt made a report to the Surgeon General on the condition and requirements of the section of Comparative Anatomy of the Museum. (Not published; manuscript of 62 pages.)

On April 1, Jacob Lawson Wortman was appointed Anatomist to the Museum.

On April 16, Dr. Washington Matthews, Asst. Surgeon, U.S. Army, was assigned to duty at the Museum.

On May 3, Dr. Shufeldt was relieved from duty at the Museum.

On May 9, there was a reception at the Museum by the Surgeons General of the Army and Navy and other officers of the Army and Navy to the American Medical Association.

On May 28, Senator Mahone reported a bill (Calendar No. 657), appropriating $200,000. for a new Museum building. It passed the Senate June 3 and was sent to the House.

August 17. Death of Dr. Woodward, at a hospital at Wawa, Pa.

In December, Dr. Matthews was at Fort Wingate, N. M.

At the New Orleans Exposition, in 1884-85, the Museum was represented by models of hospitals, hospital boats and cars, ambulances, litters, medical chests and knapsacks, photographs and books, catalogues and circulars, series of microscopes and slides, crania and pathological specimens.

The following pamphlets were published in connection with the Exposition:

"Exhibit class 3, No. 2. "Description of the models of hospital steam vessels," by Dr. Woodward. No. 3. "Description of the models of hospital cars." No. 4. "Description of the U.S. Army medical transport car. Model of 1876," by Drs. Huntington and Otis. Exhibit class 4, No. 5. "Description of selected specimens from the Medical and Surgical Sections of the Army Medical Museum, at Washington," by Dr. Billings. No. 6. "Description of the microscopes and microscopical preparations from the Army Medical Museum, Washington," by Dr. Billings. No. 7. "Description of the composite photographs of the crania, from the Army Medical Museum, Washington," by Dr. Billings. No. 8. "List of crania and skeletons in the Section of Comparative Anatomy of the U.S. Army Medical Museum, Washington," revised by Dr. Billings. Exhibit class 5. "Photographs illustrating rare books in the Library of the Surgeon General's Office."

"Publications in 1884 by Dr. Lamb, based on work done at the

Museum:

"Case of cicatricial stenosis of small intestine." Proc. Med. Soc. D.C., Washington, 1883-85, 16.

"Case of puerperal peritonitis." Ibid., 89. (Also Maryland Med. Jour., Balt., 1884, XI, 6.)

"Typical lesions of typhoid fever." Ibid., 133. (Also Maryland Med. Jour., Balt., 1884-85, XII, 376.)

"Case of adeno-carcinoma of intestine with renal calculus." Ibid., 161.

March 2, 1885. Passage of the bill for the new Museum building by the House of Representatives; the same as Mahone's bill. Approved this date by President Arthur.

On April 20, a large number of specimens of Comparative Anatomy, several hundred, were transferred to the U. S. National Museum.

On July 8, Dr. William M. Gray was appointed to duty at the Museum for bacteriological and microscopical work.

The following publications in 1885 were based more or less on the work done in the Museum:

By Dr. J. S. Billings: ""On composite photography as applied to craniology and on measuring the cubic capacity of skulls." Read April 12, 1885. Mem. Nat. Acad. Sc., Washington, 1885, III, 105-116, 20 plates.

By Dr. Matthews: "On measuring the cubic capacity of skulls." Ibid., pages 107-116.

By Drs. Matthews and Billings: "On a new craniophore for use in making composite photographs of skulls." Ibid., page 117; also in Photogr. Times and American Photographer, Jan. 15, 1886, p. 38.

Dr. H. C. Yarrow, Contract Surgeon, assisted Dr. Matthews in measuring crania and made two trips to the West to secure Indian crania.

September 18, 1886. In the Medical News of this date, Volume XLIX, page 330, appeared an article from a special correspondent (probably Dr. Billings) containing a description of the new Museum building and a view of its front and east sides. (A more complete description prepared or approved probably by Dr. Billings will be

found under the year 1887). The News adds that Dr. Billings' conception of the Museum was as follows:

1. To illustrate the effects, both immediate and remote, of wounds and of the diseases that prevailed in the Army.
2. To illustrate the work of the Army Medical Department; models of transportation of sick and wounded, and of hospitals; medical supplies; instruments; etc.
3. To illustrate human anatomy and pathology of both sexes and of all ages.
4. To illustrate the morphological basis of ethnological classification, more especially of the native races of America, including anthropometry and craniology.
5. To illustrate the latest methods and apparatus for biological investigations and the various methods of preparing and mounting specimens.

In October, Dr. J. C. McConnell of the Museum devised an instrument called a periglyph for making orthogonal drawings of the skull. It was figured and described in detail by Dr. Matthews in the Jour. Anat. and Physiol., London, XXI, page 43, plate II.

On November 13, Dr. J. H. Janeway, U.S. Army, stationed in New York City, was requested by Dr. Billings to examine the Museum left by Dr. Frank H. Hamilton, with the view of possibly buying it for the Army Medical Museum. On November 27, the collection was bought. It contained 58 plaster casts, 95 dry preparations (bones), 14 missiles and foreign bodies removed from wounds, and 4 miscellaneous specimens.

The following publications of 1886 were based more or less on work done at the Museum:

By Drs. Billings and Matthews: "A new craniophore for use in making composite photographs of skulls." Photogr. Times and Amer. Photographer, Jany. 15, 1886.

By Dr. Matthews: "An apparatus for determining the angle of torsion of the humerus." Jour. Anat. and Physiol., Lond., 1886, XXI, page 536.

By Dr. Lamb: "Anomalous lobation of human lung." Med. News, 1886, Phila., XLVIII, 181. Also reprint.

"Case of tumors of liver of stillborn infant; and other specimens." Journal Am. Med. Assoc., Chicago, 1886, VI, 25.

"Case of extra-uterine pregnancy." Ibid., 413.

"Case of hypertrophy of heart; weight 38 oz." Ibid., 414.

"Case of pyo-salpinx." Ibid., 1886, VII, 279.

"Case of general tuberculosis." Ibid., 279.

"Case of embolism of brain." Ibid., 582.

"Case of acute general tuberculosis supervening on enlarged cheesy mesenteric glands; death from meningitis." Ibid., 668.

See also E. W. Germer: "Das Museum der Gesundheitspflege, (Army Medical Museum)." Cutting from Erie Tageblatt, Erie, 1886, Jan. 21.

During the year 1886 the following new classification of specimens was devised by Drs. Billings and Matthews:

A, The whole organism or more than one region. A1. Embryology and development. A2, Anatomy and Physiology. A3, Abnormities and Deformities. A43, Atrophy, Degeneration and Mortification. A44, Inflammation and its sequelae. A45, Parasites and Parasitic and Infectious Diseases. A46, Tumors and concretions. A5, Injuries and foreign bodies. A6, Restoration and repair.

Aa, Region of Head and Neck. Aa2, Normal Anatomy and Physiology. Aa3, Abnormities and Deformities. Aa41, Disorders of Circulation. Aa42, Hypertrophy and Dilatation. Aa44, Inflammation and its sequelae. Aa45, Parasites and Parasitic and Infectious Diseases. Aa5, Injuries and foreign bodies. Aa7, Surgery.

Ab, Region of Thorax. Ab2, Normal Anatomy and Physiology. Ab43, Atrophy, Degeneration and Mortification. Ab44, Inflammation and its sequelae. Ab45, Parasites, Parasitic and Infectious Diseases. Ab46, Tumors and Concretions, Ab5, Injuries and Foreign Bodies.

Ac, Region of Abdomen. Ac2, Normal Anatomy and Physiology. Ac3, Abnormities and Deformities. Ac4, Diseases. Ac45, Parasites, Parasitic and Infectious Diseases. Ac46, Tumors and Concretions.

Ad, Region of Male Pelvis. Ad2, Normal Anatomy and Physiology. Ad3, Abnormities and Deformities. Ad4, Diseases. Ad5, Injuries and Foreign Bodies. Ad6, Tumors and Concretions.

Ae, Upper Extremities. Ae5, Injuries and Foreign Bodies. Ae6, Repairs and Restoration. Ae7, Surgery.

Af, Lower Extremities. Af2, Normal Anatomy and Physiology. Af3, Abnormities and Deformities. Af4, Diseases. Af41, Disorders of Circulation. Af42, Hypertrophy and Dilatation. Af43, Atrophy, Degeneration and Mortification. Af44, Inflammation and its sequelae. Af45, Parasites, Parasitic and Infectious Diseases. Af46, Repairs and Restoration. Af7, Surgery.

B42 to B48, and B5, B6, and B7, Human Skeletons, pathological.

Ba, Cranial Bones. Ba1 to Ba4, 42 to 46, Normal and Pathological. Ba5, Injuries and Foreign Bodies. Ba6, Repair and Restoration. Ba7, Surgery.

Bb2, Vertebrae, Ribs, Sterna, Hyoid, Normal. Bb3, Abnormal. b| B~~1~~4, 43 to 48, Diseases. Bb5, Injuries and Foreign Bodies. Bb6, Repair and Restoration. Bb7, Surgery.

Bc2, Male pelvis, normal. Bc43 to 48, Diseases. Bc5, Injuries and Foreign Bodies.

Bd, Bones of upper extremities. Bd2, Normal. Bd3, Abnormal. Bd4, Disease. Bd42, Hypertrophy and Dilatation. Bd43, Atrophy, Degeneration and Mortification. Bd44, Inflammation and its sequelae. Bd45, Parasites etc. Bd46, Tumors and Concretions. Bd5, Injuries and Foreign Bodies. Bd6, Repair and Restoration. Bd7, Surgery.

Be, Bones of lower extremities. Be2, Normal. Be3, Abnormal. Be4, Disease. Be42, Hypertrophy and Dilatation. Be43, Atrophy, Degeneration and Mortification. Be44, Inflammation and its sequelae. Be45, Parasites, etc. Be46, Tumors and Concretions. Be5, Injuries and Foreign Bodies. Be6, Repair and Restoration. Be7, Surgery.

C, Muscular System.

D, Circulatory System. Da, Heart and Pericardium. Db, Arteries. Dc, Veins.

E, Lymphatic System and Ductless Glands. Ea, Lymphatics. Eb, Spleen. Ec, Suprarenal capsule. Ed, Thyroid gland.

F, Nerve System. Fa, Brain. Fb, Oblongata and Spinal Cord. Fc, Peripheral and Sympathetic Nerves.

G, Respiratory System.

H, Digestive System. Ha, Dental Specimens. Hb, Mouth. Hc, Pharynx and Oesophagus. Hd, Stomach and Duodenum. He, Intestines. Hf, Rectum and Anus. Hg, Salivary Glands. Hh, Pancreas. Hi, Liver. Hk, Peritoneum.

I, Organs of Sense. Ia, Eye. Ib, Nose. Ic, Tongue. Id, Ear.

K, Urinary Organs. Ka, Kidneys and Ureters. Kb, Bladder and Urethra, Kc, Urinary Calculi.

L, Male Genitals.

M, Female Genitals.

N, Integumentary system.

O, Microscopes.

P, Weapons and Missiles.

R, Anthropometric apparatus.

S, Surgical Instruments.

March 21, 1887, Dr. Matthews described a new instrument for drawing contours of the interior of the skull without disturbing the bone.

In August, 1887, Dr. Matthews went to Arizona to investigate the ruins of the Zuni Indians. On October 5, he reported to Dr. Billings that he had found that Mr. F. H. Cushing, the Director of the Hemenway Expedidition, had excavated many skeletons, which, however, for want of proper care had been wasted, trampled into dust. Dr. Matthews, using paraffin, saved many specimens and arranged with Cushing that as he, Matthews, was saving these bones, they should go to the Army Medical Museum, on condition that they should be labelled as contributed by the Hemenway Southwestern Archaeological Expedition, and be studied and reported on to the Expedition. The Museum might return such specimens as in its judgment might be necessary for the Expedition to illustrate its collection.

In November, Dr. J. L. Wortman of the Museum went to Arizona to help in the work of preserving and packing for transportation the skeletons that were excavated. (On February 6, 1888, he reported that he was using shellac on the bones to hold them together and prevent disintegration. In May, 1888, the specimens began to arrive at the Museum. Another lot of bones, filling five boxes, was sent to Salem, Massachusetts, then the headquarters of the Expedition, and in October, 1889, was sent to the Museum. There was still left at Zuni other bones which, in June, 1891, Dr. Matthews had transported to the Military Post, Fort Wingate, where he was stationed, and these were forwarded to the Museum; 25 boxes. All these and the previous lots from the Expedition were afterwards transferred to the National Museum, Washington).

On November 1, Dr. Matthews returned to the Museum.

On December 14, a joint resolution was introduced in both Houses of Congress for preparing an illustrated catalogue of the Museum, but did not pass.

During this month, the moving of the Museum specimens into the new building proceeded. It was found that the new Museum cases were just a little too high to take them through the doorway of the Museum Hall and they had to be taken through a large window on the South side of the hall.

Dr. Billings contemplated having a Guide Book printed for the Museum and Library; to wit:

Guide Book for the Army Medical Museum and Library, N.W. Cor. 7th and B Streets, S.W., Washington, D.C.
Exterior view taken from the southwest, as frontispiece.
Historical Introduction.
Description of the building with floor plans of main and second floors and of third floor of center building.
Objects of the Museum; general arrangement of the contents; description of special interesting specimens in the different cases.
General description of the Library; of the Index Catalogue; notice of some of the important rare books, etc.
To make about 60 pages, octavo, long primer.

The book was not printed. The following is his description of the building:

The Army Medical Museum and Library building is situated to the east of the National Museum and the Smithsonian Institution, at the intersection of Seventh and B Streets, Southwest, facing B Street on the South, with the east wing abutting on Seventh Street. It is easily accessible by the Pennsylvania Avenue and Seventh Street cars, and by the Belt line. The building was erected on a reservation of 270 x 160 feet, at a cost of $200,000, according to plans prepared by the architect, Mr. A. Cluss, under instructions from Surgeon J. S. Billings, U. S. Army, acting for the Surgeon General, and was finished in the fall of 1887. It is exceedingly plain, without ornamentation, and consists of a centre building, two wings and an annex to the centre building in the courtyard.

The walls are of brick, constructed with a bonded internal lining of hollow brick for all walls exposed to the weather. The moulded work and the cornices consist of pressed brick and terra cotta. The floors of the first story are constructed of brick arches between rolled iron beams. The floors above are formed of flat arches, built of hollow bricks between rolled beams. The roofs of the centre building are constructed similarly to the floors but of lighter material. The columns used are of fireproof sectional wrought iron. The Library and Museum are constructed so as to form fireproof compartments separated from the other parts of the building. The stairs are of wrought and cast iron. The centre building, 112 feet in length and 55 feet in width, has a basement and four stories, respectively eleven, fifteen, fourteen, thirteen and twelve feet in height; the wings are sixty by one hundred and thirty-one feet and, with basements of eleven feet in height, and first stories of fifteen feet. The second story, devoted one to the Museum, the other to the Library, are open to the roof and ventilated by continuous lantern skylights. These halls are thirty-one feet high to the eaves and forty-seven feet high to the ridge of the lantern. The east or Museum wing has a gallery fourteen feet wide and twelve feet six inches above the floor. The annex connected with the centre building by a covered passage is fifty-two feet in length and twenty-four in width, and has a basement in which are the steam-boilers, pumps and coal cellar, and two stories containing rooms for the anatomical and biological laboratory.

The First Floor.--Entering the building on the south side and turning to the left or west, the corridor with office rooms on each side leads to a large hall supported by iron columns, which extends the whole length of the west wing. The hall and the offices on the corridor leading thereto are assigned to clerks of the Record and Pension Division of the War Department. Here are kept the record of the hospitals of the war of the rebellion, from which the Pension Office is furnished with data relating to the medical history of the applicants for pensions. On the corridor to the right of the main entrance, leading to the east wing, are two additional rooms for clerks of the Record and Pension Division and two rooms occupied by the Chemist of the Surgeon General's Office. In the east wing on this floor is a room containing an outfit of furniture, medicines, etc., for a post hospital, a room for specimens of genito-urinary organs; also for reserve specimens; a dissecting room, an anatomist's room and a dark room.

The Second Floor.--On the second floor of the centre building are found the offices of the Surgeon in charge and of the clerks connected with the Library, and a reading room for those who wish to avail themselves of books in the Library. In the east wing on this floor is the Museum and in the west wing the Library.

The Third Floor.--Of the rooms on this floor five on the south side are occupied by officers and clerks connected with the Museum; on the north side the room next to the Library wing is the Microscopical room, and that next to the Museum the anthropometrical

room. In the latter are found apparatus for testing color sense, error in estimating squareness, judgment of eye, swiftness of blow, strength of pull and squeeze, delicacy of muscular sense; scales for measuring height and span of arms; test-type apparatus, Wolpert's air-tester; J. McK. Cattell's instrument for measuring reaction time, A. T. Keyt's sphygmograph, Snellen's phakometer, an aesthesiometer, Hall and Donaldson's instrument for testing motor sensations on skin, optometers, kymograph, aeroscope, aerobioscope, etc.

The Fourth Floor of the centre building contains the Photograph Gallery and a number of storerooms, two of which are filled with travois, litters, cacolets, and other appliances for transportation of sick and wounded in the field, for which no space could be found in the Museum Hall.

The following publications of 1887 were based more or less on work done at the Museum:

By Dr. Lamb: "Case of syphilitic disease of bone." Jour. Am. Med. Assoc., Chicago, 1887, VIII, 46.
"Case of typhoid fever." Ibid., 188.
"Case of cancer of suprarenal capsules and Addison's disease." Ibid., 304.
"Case of osteomalacia." Ibid., 193.
"Case of shot wound of lumbar spine; ball lodged in spinal cord; removed after death, 18-1/2 years after injury." Ibid., IX, 53.
"Case of bony formation in eye." Ibid., 121.
"Case of death from illuminating gas." Ibid., 313.

On February 15, 1888, the removal of the Museum specimens to the new building was completed.

In March, occurred the interesting case of Mrs. Emmons, said to be a paranoiac; the macroscopic and microscopic examinations were made by Drs. Lamb and Gray; afterwards a number of pathologists and others assembled at the Museum, at which the lesions were demonstrated by Dr. Welch of The Johns Hopkins University.

April 3. Statement by Dr. Billings that he was nearly ready to print a new catalogue of the Museum. The matter came under consideration of the appropriate Committee of Congress. It did not materialize.

On June 1, the annex to the Museum building was completed.

On August 10, Dr. Billings recommended Dr. Gray for promotion, saying: "Dr. Gray is a skilled microscopist, and is upon the whole I think the best preparer of microscopic specimens in this country, and probably the best maker of photomicrographs anywhere." On August 24, Dr. Gray was appointed Contract Surgeon.

On September 15, the following circular was issued:

WAR DEPARTMENT,
SURGEON GENERAL'S OFFICE,
Washington, D. C., September 15, 1888.

The attention of physicians is respectfully invited to the fact that the Army Medical Museum is not arranged in a convenient fire-proof building which affords means for the proper preservation and display of specimens, and their aid is requested to make it a complete representative collection covering all branches of medicine.

The following indicates the classes of specimens especially desired, with the best means of preserving them so as to make them most useful:

1. Embryos of all animals and of all ages; human embryos of early ages in the membranes are especially desired.

Perfectly fresh human embryos should have their membranes perforated by small slits in one or two places, and then be placed in Müller's fluid, and kept in a cool place for 24 hours; the fluid should then be replaced by fresh.

If it is only possible to place a specimen in the preservative fluid five or six hours after delivery, commercial alcohol, 80 per cent., should be used in place of Müller's fluid.

Fresh embryos of animals, ranging from 1 1/2 inches down to a few millimetres in length, may be preserved in either Müller's fluid, Perenyi's fluid, or chromic acid, 1/2 per cent. solution. The uterus should be taken from the recently killed animal, and opened while immersed in one of the preservative media. If Perenyi's fluid is used, allow the specimen to remain in it for from three to six hours, then transfer to alcohol (commercial).

2. Specimens of the pregnant uterus, human or from lower animals, with the appendages, especially those where the contents have not been disturbed except to admit alcohol to the interior.

3. Complete human skeletons of which the age, sex, and race are known. Skeletons of very old persons are especially desired. When complete skeletons cannot be furnished, the skull, pelvis, and long bones are wanted. Skeletons of the following animals are desired, viz:

SKELETONS.

Monkeys of any species.
Carnivora-
Wild cat (Lynx rufus).
Canada lynx (Lynx Canadensis).
Eyra (Felis eyra).
Yaguarundi (Felis yaguarundi).
Jaguar (Felis onca).
Wolverine (Gulo luscus).
Fisher (Mustela pennanti).
Little striped skunk (Spilogale zorilla).
Otter (Lutra Canadensis).
Sea otter (Enhydra marina).
Grizzly bear (Ursus arctos).
Black bear (Ursus Americanus).
Ungulata-
Antelope (Antilocapra Americana).
Mountain goat (Mazama Montana).
Edentata-
Armadillo (Tatusia peba).
Birds-
Water birds of any species, especially waders; likewise carnivorous species.

In the collection of skeletons of any kind it is especially important that every bone should be preserved; care should be taken to obtain all the feet and hand bones, the hyoid bones or bone, and the sesamoid bones, should they exist, together with every piece belonging to the skeleton, however small and insignificant it may appear to be.

The loose teeth should in every instance be carefully gathered up, put in a separate package, and placed inside the skull.

The labeling of every human skeleton should be carefully attended to; the important points to be noted upon the label being the locality, race, if known, age and sex, if ascertainable.

In the case of a skeleton other than human, the locality and species are sufficient.

If the skeleton is fresh and the soft parts adherent, it should be roughly cleaned and hung in the shade to dry. No attempt should be made by the collector to finally prepare any osteological specimen by boiling, macerating, etc.; to do this properly requires special appliances, which are to be found in a well appointed laboratory only.

Skeletons of very old animals of any species are of value to the collection.

4. Specimens of the eye, internal ear, olfactory organs, the tongue with its attachments (including the larynx and upper part of the trachea), the external and internal genitals, and the brain and spinal cord from infants, children, very old persons, and from wild animals, are desired if they can be obtained perfectly fresh.

Specimens of eyes, either normal or pathological, if taken from the living animal, should be placed immediately in Müller's fluid and set aside in a cool place for 24 hours, when the fluid should be replaced by fresh and again changed on fourth day.

Internal ear, olfactory organs, tongue, etc., should be treated in the same manner, if removed one or two hours after death.

If removed five or six hours after death, as is usual in the majority of post-mortems, all of the organs of special sense are best preserved in commercial alcohol.

Brains and cords should be placed as soon as possible after death in Müller's or Erlicki's fluid. If removed within 36 hours after death, the brain and cord may be preserved and hardened whole in either of these fluids, if kept in a cool place; if it is the intention to preserve the specimen whole, change the fluid every 24 hours for five days, keeping at as low a temperature as possible.

Specimens of the central nervous system removed three days or more after death should be preserved in commercial alcohol.

5. Hearts, with as much of the great vessels attached as possible; kidneys, with ureters; pancreas, with its ducts; spleen; suprarenal bodies; stomach, with oesophagus and commencement of the intestine, from very old persons and from wild animals, preserved in alcohol, are desired.

Specimens of the smaller wild animals and parts of animals should be preserved in alcohol, as of the following:

Swift fox (Vulpes velox).
Prairie fox (Vulpes macrourus).
Island fox (Urocyon littoralis).
California civet (Bassaris astuta), (much desired).
Pine marten (Mustela martes).
Fisher (Mustela pennanti).
Wolverine (Gulo luscus).
Badger (Taxidea Americana).
Raccoon (Procyon lotor).
Head of any species of bear.
Head or limbs of any species of seal (much desired).
Any species of bat.

Any species of mole or shrew.
Jumping mouse (Zapus hudsonius).
Wood rat (Neotoma floridana).
Musk rat (Fiber zibethicus).
Pouched gopher (Geomys bursarius).
Gray squirrel (Sciurus carolinensis).
Ground squirrels (Spermophilus), any species.
Prairie dog (Cynomys ludoviciana).
Woodchuck (Arctomys monax).
Porcupine (Erethizon dorsatus).
Rio Grande armadillo (Tatusia peba), (very much desired).
Also limbs and heads of animals preserved in alcohol, the cervical vertebrae remaining attached to the heads, and the brain and spinal cord being left undisturbed.

Materials designed to illustrate the macroscopic anatomy of the brain are best preserved in commercial alcohol, but is scarcely ever suffices to plunge the specimen directly into this preservative.

The best practice is to decapitate the subject, wash out the circulatory system with salt solution of moderate strength in tepid water, and inject strong solution of zinc chloride or corrosive sublimate.

Care should be taken to ligate the vertebral and one of the carotid arteries before proceeding, the injection being done preferably through the opposite carotid.

In the case of small animals not larger than a common cat, injection of the brain is not absolutely necessary, but the brain case should be freely opened (care being taken not to injure the brain) in order that the alcohol may penetrate well.

After injection, the specimen should be placed in alcohol. In the case of a human brain, it is best to both inject, as directed above, and open the brain case in addition.

No attempt should be made to remove the brain unless the entire head cannot be obtained. In such instance a thorough washing out of the circulatory system and subsequent injection, as directed above, will be found of great assistance in handling. This of course must be done before any attempt at removal.

The nerve trunks should be cut as long as possible, the dura mater split up, and the whole placed in a saturated solution of zinc chloride for a period of 48 hours before transferring it to alcohol. Cotton or hair should then be carefully packed around it so as to prevent distortion as far as possible.

Brains of Chinese, Indians, Negroes, and other races are specially desired. Brains of any of the vertebrata, but more especially those of the mammalia, are wanted.

The preservation of any of the hollow viscera is best accomplished by first washing them out thoroughly and then placing in commercial alcohol. In the case of hearts or kidneys, the vessels should be cut long so as to show their principal bifurcations and branches.

6. Specimens illustrating results of wounds and operations in man and the lower animals, especially those showing the results of old fractures and dislocations, of excisions of bones and joints, of old injuries of the head; also stumps.
7. Abnormities and deformities of all kinds in man or lower animals, monsters, contracted joints, spina bifida. These are especially desired preserved in alcohol. Specimens of deformed pelves are particularly desired.
8. Atrophies of organs or limbs from man or lower animals.
9. Hypertrophies of all kinds; tumors of all kinds.
10. Specimens illustrating diseases of the nervous system, sclerosis, or atrophy of brain or cord; neuritis.
11. Specimens illustrating disease or results of injury of the eye, internal ear, and nose, from man, or lower animals. Temporal bones, larynx, tongue, and lower jaws from deaf-mutes are especially desired. For modes of preservation see above.

Tumors and pathological organs are best preserved in alcohol or alcohol and bichloride of mercury solution. It is especially desirable to use one or other of the preservatives mentioned in notes 1, 2, 3, and 4, if the body has not been dead over 24 hours.

12. Specimens illustrating abnormities or diseases of the jaws and teeth, including casts showing irregularities of the teeth and the results of treatment.
13. Hernias, especially irreducible hernias with the viscera in the sac.
14. Diseases of the vascular system, especially aneurisms, arteritis, phlebitis, acute endocarditis, valvular lesions of the heart, rupture of the heart, vessels that have been ligated or obstructed.
15. Diseases of the pancreas, contracted liver, acute yellow atrophy of liver, contracted kidney, acute nephritis, diseased suprarenal capsules, ulcer of stomach or duodenum.
16. Diseases of the skin, tattoed skin, leprosy, ichthyosis, chronic eczema, lupus.
17. Calculi and concretions, foreign bodies in situ.
18. Parasites of muscles and skin, including trichinia, psorospermia, taenia, tricophytae, etc., are desired.
19. Specimens of enlarged or diseased lymphatics or masses of so-called scrofulous glands.
20. Diseases of bones and joints, including rickets and craniotabes in infants. Specimens of diseases of infants and young children, especially of intestines in cholera infantum, lungs in pneumonia of infants, specimens of cardiac disease or malformation from the infant, specimens of congenital deformity of any kind.
21. Specimens showing the result of long continued pursuit of a particular trade or profession as affecting bones, joints, or any viscus. Specimens showing infiltration of tissues with lead or silver salts are particularly desired. Specimens of pigmentary or lardaceous degeneration.

22. Syphilitic gummata, diseases of the genital organs showing cicatrices.
23. Specimens of instruments and apparatus new and old, including those used in physiological investigation, in diagnosis and in therapeutics, whether surgical or medical.
24. Models, casts and photographs; diagrams and apparatus used in demonstrations or medical and surgical teaching.

Specimens forwarded by medical officers of the Army at posts may be sent through the Quartermaster's Department, unless speedy delivery is desirable, when they should be sent by Adams Express. Other contributors can forward specimens by Adams Express, in suitable boxes or packages, marked "Surgeon J.S. Billings, U.S. Army, Curator of the Army Medical Museum, Washington, D.C." The freight charges are defrayed here by the Museum.

JOHN MOORE,
Surgeon General.

On September 20, a reception was given to the Congress of American Physicians and Surgeons at the Museum. Dr. Billings read an address on Museums treating more especially of the Army Medical Museum. The address was published in The Medical News, Philadelphia, 1888, LIII, 309.

On October 3, the following circular letter was issued and sent to 83 physicians. Many replies were received saying that the gentlemen would attend to the matter. Four persons only appear to have given any definite information, namely: Drs. Thomas Dwight, of Harvard, who reported 3 cases of 8th sternal rib, Joseph Leidy, of Philadelphia, who reported 5, F. A. Morrison, of Indianapolis, who reported 2, and John W. Perkins, of Kansas City, Missouri, who reported 3:

War Department,
Surgeon General's Office,
Army Medical Museum,
Washington, Oct. 3, 1888.

Dear Doctor:
I desire to obtain certain data with regard to the relations

of race to variations of structure in man, and venture to ask your assistance both from your past experience and from observations which I hope you will make hereafter.

1. Have you seen any cases in which there were eight (8) true or sternal ribs, the eighth rib being joined directly by its own cartilage to the sternum and not through the cartilage of the seventh rib? If so it is desirable to know for each case whether the person was white, negro, mulatto, Indian, half breed, Celt, etc., and the sex; also whether the anomaly was present on both sides or on one side only, and, if the latter, on which side.

2. I wish to obtain data as to the age at which bony union of the greater and lesser cornua of the hyoid bone takes place with the body in the different races and in the sexes. For this purpose it is desirable to note carefully the condition of this bone as regards the ossific union of its various elements in persons over 35 years of age whom you may have the opportunity to examine, noting at the same time sex, probable age, race, etc., such as Negro, mulatto, Indian, half breed, Chinese, Irish, English, German, Scandinavian, etc.

Age being one of the most important factors in this inquiry it is of the utmost importance to note the condition of the sutures of the skull with reference to their synostosis in all subjects where the age is entirely unknown, as frequently happens among cadavers of the dissecting room. This, it is claimed by anthropologists, affords the most reliable guide to the determination of age in such cases. If the sagittal or coronal suture shows bony union the individual is said to be at or beyond middle life, or somewhere in the vicinity of 45 years; if sagittal and coronal are jointed it indicates 45 to 55; if sagittal, coronal and lambdoid are synostosed the age indicated is said to be from 55 to 65; and if all the sutures are obliterated the age is from 65 to 80 years. The cases in which the greatest amount of interest centers are those ranging from middle age to very old.

If the specimens, roughly dissected out, can be sent to this Museum for preparation and examination, each accompanied with the above mentioned data, they will be gladly received. It would be still better if the entire larynx including the tongue could be sent in alcohol.

The results of this inquiry will be published and full credit given to all contributors.

Very respectfully,

Your obedient servant,
John S. Billings,
Surgeon, U.S. Army,
Curator, Army Medical Museum.

On October 22, Dr. William Lee, of Washington, began to make a collection of medical medals for the Museum.

On November 1, Dr. Matthews returned to the Museum.

The following publications in 1888 were based more or less on work done at the Museum:

By Dr. Charles Smart, U.S. Army: "Medical and Surgical History of the War, Part III, Vol. 1. Medical Volume."
By Dr. W. M. Gray: "Photomicrography." Microscope, Detroit, 1888, VIII, 172.
By Dr. Lamb: "Case of bone syphilis." Jour. Am. Med. Assoc., Chicago, 1888, X, 400.
"Case of senile hydrocephalus." Ibid., 489.
"Case of tumors of glands." Ibid., 1888, XI, 137.
"Case of death from strangulated femoral hernia." Ibid., 315.

On March 14, 1889, Porter Tracy was appointed a clerk to assist Dr. Matthews in anthropometrical work.

On July 18, Dr. Edwin R. Hodge was appointed to assist the anatomist.

In the Report of the Surgeon General for the fiscal year 1888-89, page 8, is a statement that 73 specimens of eyes, showing disease or injury, had been contributed by Dr. H. D. Noyes of New York City. These specimens are not in the Museum and Dr. Noyes' name does not appear in the list of contributors nor in the correspondence of that year. A series of 26 specimens of the same character was received in June, 1889 from Dr. S. M. Burnett of Washington. If Dr. Noyes' specimens were actually received, some disposition must have been made of them, of which no record is found.

The Surgeon General in the same Report, page 13, said:

"The question of space for the better accommodation of the present holding of the Museum and for the additions which experience

shows are to be expected, is already obtruding itself. Some special and valuable exhibits, such as surgical instruments, medical medals, photographs and specimens of medical field equipments of our own and foreign military services already suffer from insufficient or unsuitable presentation. The last is particularly worthy of completion and satisfactory display, but it cannot be effected while the rooms in the building are used for other purposes than those of the Library and Museum. In fact there is no avoiding the conclusion that the whole of the office rooms on the first floor of the building now occupied by the Record and Pension Division should pass into my control for the use of the growing Library and Museum, for which the whole building was originally constructed. No one who is well informed as to the needs of the Library and Museum, their value to the medical profession and to the public, and the means by which this value may be increased, will hesitate to state that the control of the whole building for the use of the Library and Museum is abundantly justified. I therefore earnestly recommend that provision be made elsewhere for the work of the Record and Pension Division of the War Department and that justice may be done to the intent for which this building was constructed.

"As the facilities afforded by the Museum are frequently sought by investigators in particular lines of research the preparation of a catalogue seems desirable, none having been printed since 1866, when the number of specimens was comparatively few and a different classification was followed. Such a catalogue would involve much labor, but if in existence and properly distributed, would make the extensive collection of the Museum widely known and correspondently available for students."

The following publications in 1889 were based more or less on work done at the Museum:

By Dr. Matthews: "The inca bone and kindred formations among the ancient Arizonians." Am. Anthrop., Washington, 1889, II, 337.

By Dr. Lamb: "Thoracopagus." Jour. Am. Med. Assoc., Chicago, 1889, XII, 118.

"Case of typhoid fever." Ibid., 134.

"Case of eighth sternal rib." Ibid., 135.

"Case of cancer of kidney." Ibid., 423.

"Case of intracranial hemorrhage." Ibid., 1889, XIII, 316.

"Chronic osteitis, two cases." Ibid., 350.

"Case of tubercular peritonitis." Ibid., 391.

"Eighth sternal rib in man." Nature, Lond., 1889, XXIX, 17.

"Eighth sternal rib in man." Am. Anthrop., Wash., 1889, II, 75, Also cutting.

By Dr. W. M. Gray: "Alveolar sarcoma of tonsil." Amer. Jour. Med. Sc., Phila., 1889, XCVII, 154.

In his Report for the year 1889-90, the Surgeon General said

that the Museum building was originally erected by an appropriation which comprised only 50 per cent of that called for in the estimates. It was therefore materially curtailed, not only in its proportions but in its conveniences for the ends in view. The growth of the collections had now reached a point where there was some embarrassment in properly caring for them. He therefore renewed the request that the whole of the Museum and Library building be devoted to its legitimate purpose.

On April 28, 1890, Dr. Matthews left the Museum for Fort Wingate.

On June 4, Dr. Hodge was appointed Anatomist, in place of Dr. Wortman, resigned.

The following publications for 1890 were based more or less on work done at the Museum:

By Dr. Lamb: "The olecranon perforation." Am. Anthrop., Wash., 1890, III, 159-174. Also cutting.
"Case of lymphadenoma." Jour. Am. Med. Assoc., Chicago, 1890, XV, 115.
"Case of cerebral embolism and hemorrhage." Ibid., 116.
"Case of cancer of stomach, cyst of kidney and pleuritic plate." Ibid., 190.

On February 25, 1891, Porter Tracy resigned.

On May 2, Dr. Hodge was ordered to go to Boston, to Harvard Medical School, to study new methods of preparing specimens.

Sometime during this month, a reception was given at the Museum to the American Medical Association.

On April 17, a Mr. Erich Wittkugel, who headed his paper "Naturalista", and stated that he was making a collection of mammals, etc. for the Columbian Exposition, wrote from San Pedro Sula, Honduras,

to Dr. Billings that he would collect fetal monkeys, (as was requested in the circular of September 15, 1888, issued by the Army Medical Museum), if he had the necessary glass jars. Accordingly, on May 15 a lot of glass jars and a copper tank were sent to him. Then came the subjoined letter of January 28, 1892, which is reproduced because of its phraseology. The alcohol was shipped to him, and April 23 he acknowledged its receipt. Apparently nothing more was heard from him.

Erich Wittkugel,
Naturalista,
Cartas: Via New Orleans, La., U.S.A.

San Pedro Sula, January 28, 1892.
Republica de Hondruas, C. A.

Dr. F. G. Billings, Esq.,
Washington, D. C.
Dear Sir:

You must accuse that I did not send anything till to this time, but it is not my fault. Captain G. P. Cotton, who wanted to get me the free introduction of the alcohol and chemicals from our government, is gone again without to do so. I have ten boxes of mentioned things since the 4th of November in Puerto-Cortes and am waiting for the answer of my petition, which I sent up to Tegucicalpa in June. It is against the law to import alcohol, otherwise I would pay the duty. I bought some alcohol here in the drug store but $3.50 the quart.

I am very sorry that you have to wait such a long time, but you can be sure to get a good collection as soon as possible.

Yours very respectfully,
(Signed) Erich Wittkugel.

The following publication in 1891 was based more or less on work done at the Museum:

By Dr. J. M. Lamb: "The microscope in the Government work in Washington." Proc. Amer. Soc. Microsc., 1891, XIV, pp. 13-40. (This is the only known publication by Dr. J, M. Lamb.)

On June 8, 1892, specimens were assembled to be sent to the Columbian Exposition at Madrid, Spain. They consisted of Indian crania and photographs.

On July 16, through a change in the law, Dr. D. S. Lamb was appointed Pathologist of the Museum and Dr. Gray Microscopist. Dr. Mew was appointed Chemist.

The following publications of 1892 was based on work done at the Museum:

By Dr. Lamb: "Osteomalacia." Jour. Am. Med. Assoc., 1892, XVIII, 188. Also reprint.

At the World's Columbian Exposition at Chicago, in 1892-317, the Museum was represented very much as at previous expositions; a model of a post hospital, in which were exhibited beds, hospital furniture and supplies, specimens from the Museum and books from the Library. Dr. Gray was for sometime on duty at this Exposition.

On July 7, Major Walter Reed, U.S. Army, who was also on duty at the Exposition, was ordered to report to the Surgeon General:

During the summer, preparations were made for installing an Army Medical School in the Museum building.

On August 22, Walter Wyman, Supervising Surgeon General, Marine Hospital Service, turned over to the Army Medical Museum the following articles formerly belonging to the National Board of Health, and at that time stored in the National Museum: 2 desks, 4 tables, 3 wash-stands, 2 hatracks, 2 wardrobes, 1 case, 1 large revolving bookstand, 1 desk revolving bookstand, 20 chairs, 2 towel racks, 3 screens, 1 stepladder. These articles are still in the Army Medical Museum building.

On September 8, Dr. Reed was assigned to duty as Curator of the Museum, while Dr. Billings continued to be Director of the Museum and Library.

On October 17, some scrapings from the chair used by President Lincoln at Ford's Theater in April, 1865, when he was shot by Booth, were examined by Dr. Gray, who reported that he found blood cells. This was 28 years after the tragedy.

In October, 1893, the Army Medical School, which had been established by order of the Secretary of War, began its first session, 1893-94, in the Museum building, occupying parts of the first and third floors.

In the Memoirs of the National Academy of Sciences, Volume I, 1893, pages 189-236, were published the following papers: "Human bones of the Hemenway Collection in the U.S. Army Medical Museum," by Washington Matthews, Surgeon, U.S.A.; and "Observations on the hyoid bones of the collection," by Dr. J. L. Wortman. The papers were reports presented to the Academy, with the approval of the Surgeon General, U.S.A., by Dr. John S. Billings, Surgeon, U.S.A.

During the year the following were also published, based on work done at the Museum:

By Drs. Gray and Billings: "Photomicrographs of normal histology." Washington, 1893.
By Dr. Lamb: "The Meckel diverticulum." Am. Jour. Med. Sc., Phila., 1893, CV, 633-641. Also reprint.
"The deadly microbe and its destruction." Am. Anthrop., Wash., 1893, VI, 15. Also, reprint.

On May 31, 1894, Dr. Matthews was again assigned to duty at the Museum.

December 10; letter of Dr. Billings to Dr. Williams Donally, Dentist, Washington, saying that:

"I have attempted in past years to call the attention of the dental profession to this institution (that is, the Army Medical Museum) as one which they should endeavor to make complete in all matters relating to the pathology and treatment of diseases of the teeth and jaws so that it might be considered by them as their national collection of literature, specimens, apparatus, etc. to illustrate the history and condition of dentistry, just as other sections of the Museum and Library are considered to be their national collections by the physicians, surgeons, and specialists of the country; and it appears to me that more definite,useful and permanent results can thus be obtained than are likely to follow from an attempt to create a new Museum and Library devoted exclusively to matters of interest to the dental profession." (See Dental Cosmos, Phila., 1895, XXXVII, page 519).

In December, 1894, Dr. Carroll while working on a corpse of a rabid dog, cut himself and as a precautionary measure went to the Pasteur Institute, New York City, for treatment.

The following publications of 1894 were based more or less on work done at the Museum:

By Dr. Lamb: "Medicolegal consideration of death by mechanical suffocation." In Witthaus and Becker's Medical Jurisprudence, Vol. I, 1894, pp. 705-791.

"The female external genital organs: a criticism on current anatomical descriptions." Am. Gynec. and Obstet. Jour., 1894, N.Y., V, 105, Also reprint.

An anonymous writer in an article entitled "The Army Medical Museum at Washington, D. C.", in the Western Medical and Surgical Reporter, St. Joseph, Missouri, 1894, VI, 30-34, gives some account of the surgical instruments in the Museum.

On October 1, 1895, Dr. Billings, having been appointed professor of hygiene in the University of Pennsylvania, was retired from active service in the Army, and was therefore relieved from duty at the Museum and Library.

On August 19, Lieut. Col.David L. Huntington, U.S.A., was appointed in charge of the Museum and Library.

On September 16, Dr. Williams Donnally, dentist of Washington, was one of a Committee of the American Dental Association, the object of which was to add to the dental exhibit in the Museum. As a result of the efforts of this committee the dental collection was much enlarged.

On September 26, Dr. Matthews was relieved from duty at the Museum.

On December 6, Dr. J. C. McConnell resigned from the Museum.

The following publications this year were based more or less on work done at the Museum:

By Dr. Lamb: "Primitive trephining in Peur." Nat. Med. Rev. Wash., 1895-96, IV, 88.

"Polyorchism. Tubercle in trochanteric fossa." Proc. Assoc. Am. Anat., 1895, VIII, 46. Also, reprint.

By Dr. B. F. Pope, U.S. Army, and Dr. Lamb: "Mycetoma, the fungous foot of India." New York Med. Jour., 1896, LXIV, 386. Also, reprint.

By Dr. Williams Donnally: "An opportunity for a great national dental museum and library." Trans. Am. Dental Assn., 1895, page 134.

On May 8, 1896, Col. Huntington, then Deputy Surgeon General, U.S.A., and in charge of the Museum and Library, read a paper before a union meeting of the Maryland State and Washington City Dental Societies; title "The Army Medical Museum and Library." After saying a good deal about the Library he said in substance as follows about the Museum:

"The American Dental Association at its thirty-sixth annual meeting had adopted a resolution formally recognizing the Museum and Library as the National Library and Museum of the Dental Profession in the United States. Dr. Huntington stated that he would be happy to cooperate in forming a collection illustrating matters pertaining to dentistry. He said that to Drs. John H. Brinton, J.J. Woodward, George A. Otis, J. S. Billings, and others, were due its scientific

value and importance; each of these gentlemen having given time, care and learning in building it up. Connected with the Museum were extensive pathological and bacteriological laboratories which served as important feeders to the main collection. As a store house of the results of military medicine and surgery of thirty years ago it was probably the most unique and valuable collection in the world, affording a curious and interesting comparative study of methods and treatment of that period with the advanced views and practice of to-day. Departing from its original limitation to military medicine and surgery, the Museum had greatly extended its scope and included departments of human anatomy, osteology, physiology, embryology, pathology and anthropology, with illustrations of the methods of research connected with all the branches of practical medicine. The largest use of photography and micro-photography had been made, in illustrating tissues and structures of the human body. There were also models for the study of veterinary medicine and surgery and some space was devoted to prosthetic apparatus, and to instruments and appliances used in the several departments of medicine and surgery. In fact it was intended that the Museum should effect through object teaching that which is secured in the Library by written works and treatises, viz., a thorough illustration of the science of medicine as it is found at the present day.

"Look through your private collections and separate such specimens as in your opinion would be appreciated by your dental brethren if placed where they could be seen and studied. Throughout this country there must be thousands of such specimens which if collected in one place would form an unrivaled exhibit, to say nothing of their value as a means of instruction to the student and investigator."

Dr. Huntington suggested donations of casts, photographs and specimens of normal, morbid and anomalous dentition, of diseases of the maxillae and oral cavity, photographs and casts of surgical operations, prosthetic apparatus of all kinds used in dental work, new instruments and specimens of mechanical work and any miscellaneous material which would lend an interest to the subject of dentistry. All specimens should be accompanied by a description and history of the case. Duplicates were needed for comparison and exchange. Specimens need not be mounted.

The following is an extract from a letter of Dr. L. E. Rauterberg, addressed to the Senate Committee on Vivisection:

"It was my lot for a number of years to be engaged in the Microscopical Division of the Army Medical Museum, and I saw practiced the most inhuman and barbarous mutilations of the dumb animal, under the supervision and with the sanction of the United States officers in charge. A desired part or section of the animal would be removed, not under anesthesia, and the poor beast would be then placed back in its cage or vessel until it suited the convenience of the operator to help himself to another portion, so long as the animal would survive these tortures. I have thus seen animals with eyes, section of brain and other parts removed, and kept in reserve for future experiments for a number of days, and all for the verification and repetition of results obtained and published years ago."

On June 5, Dr. Walter Reed, Curator of the Museum, wrote to Dr. McConnell, who had resigned from the Museum in December, 1895, as follows:

"My Dear Doctor: I understood you to say that you were willing to testify that the statements made by Dr. C. A. Norton (L.E.Rauterberg?) with regard to the cruelty practiced upon animals in the Army Medical Museum some years ago were false in every particular. Will you not oblige me by addressing either Dr. Huntington or myself a letter, stating that his assertions are false, that you were connected with the work and have every means for knowing that there was no foundation for his statements before the Senate Committee."

To Dr. Reed's letter Dr. McConnell replied as follows:

609 Third St.,
Washington, D. C.,
June 8, 1896.

Surgeon Walter Reed, U. S. A.,
Curator, Army Medical Museum,
Washington, D. C.

Dear Sir:

In reply to your letter of June 5, 1896, enclosing an extract from the Report of the Senate Committee on the District of Columbia on the subject of vivisection, I would say that a very wonderfully distorted, inaccurate and false description has been

given of work conducted at the Army Medical Museum some twenty years ago. Those who were practically engaged in the Microscopical Division should know better than any one else the character of the work that was performed, and that all animals experimented upon were under the influence of an anaesthetic. One who was not in any manner connected with the Microscopical Division of the Museum, as was the case with Dr. L. E. Rauterberg, could draw upon his imagination very satisfactorily, and write a vivid description of what might have been done with animals, the remains of which he saw under alcohol in specimen jars. I, however, testify that at no time during my connection with the Army Medical Museum, from about 1870 to the end of the year, 1895, have any experiments been performed upon animals in which an anaesthetic was not used, unless some of the ordinary inoculation experiments, which are practically painless, nor were animals kept in a mutilated condition.

Very respectfully,
(Sgd.) Dr. J. C. McConnell.

In view of this Senate investigation of vivisection, the Medical Society of the District of Columbia, passed resolutions, one of which invited the societies, colleges and bureaus in the District that were interested in the matter, to appoint delegates to form a committee to be known as the "Joint Commission on Vivisection" which would inquire into the practice of vivisection in the District and also represent before Congress the interested organizations. On this Commission Dr. Walter Reed, Curator of the Museum, was appointed October 18th.

The following publications this year were based more or less on work done at the Museum:

Dr. Charles Smart, Major and Surgeon, U.S.A., in an article entitled "The Army Medical Museum and Library of the Surgeon General's Office", published in the Jour. Mil. Service Inst. U.S., Governor's Island, N.Y. Harbor, 1896, XIX, 288-299, gave a brief history and description of the Museum and Library and the building in which they are housed.

By Dr. Lamb: "Case of atheroma of aorta." Trans. Med. Soc. D.S., Washington, 1896, I, 35.

"Case of hypertrophy of spleen." Ibid., 179.

"Case of multiple abscesses of liver and mesentery." Ibid., 227.

1897. The following publications this year were based more or less on work done at the Museum:

By Dr. D. L. Huntington: "The Army Medical Library and Museum." Nat. Med. Rev., Washington, 1897-98, VII, 66.

By Dr. Lamb: "Case of bilateral anchylosis of jaws." Med. Soc. D.C., Trans., Washington, 1897, II, 33. (Also Nat. Med. Rev., Washington, 1897-98, VII, 57.)

"Case of spina bifida." Ibid., 57. (Also Nat. Med. Rev., 1897-98, VII, 89.)

"Case of hemorrhage and softening of brain." Ibid., 59. (Also Nat. Med. Rev., 1897-98, VII, 91.)

"Case of hemorrhage into spinal cord." Ibid., 151. (Also Nat. Med. Rev., 1897-98, VII, 233.)

"Case of cancer of pancreas followed by dilatation of bile passages." Ibid., 170. (Also Nat. Med. Rev., 1897-98, VII, 268.)

"Case of recurring cancer." Ibid., 185. (Also Nat. Med. Rev., 1897-98, VII, 313.)

"Case of parasites in heart of dog." Ibid., 187. (Also Nat. Med. Rev., 1897-98, VII, 288.)

"Precolumbian syphilis." Proc. Assoc. Am. Anat., 1897, X, 63. Also, Reprint. Also Nat. Med. Rev., 1897-98, VII, 234.

On January 31, 1898, Dr. Huntington was relieved from duty in the Museum and Library and Col. Dallas Bache, U.S.A., was appointed in charge.

On April 25, the hours of duty at the Museum were extended from 4 to 5 p.m. for such employees as were on duty in connection with the preparations for the war with Spain.

In May, a number of specimens were sent from the Museum to the Trans-Mississippi and International Exposition at Omaha, Nebraska.

On May 8, Indian crania, 2206 in number, were transferred from the Army Medical Museum to the U.S. National Museum.

On May 22, Dr. Carroll was discharged as Hospital Steward, U.S.A., to be appointed as Acting Assistant Surgeon.

On June 1, Dr. Gray was ordered to report at once to Major

George H. Torney, Surgeon, U.S.A., for duty on board the hospital ship "Relief." His duty was X-ray work.

Godey's Magazine for 1898, pages 408-418, contained an article on the Museum by Joanna R. Nichols Kyle.

The Army Medical School did not hold a session in 1898-99, because of the War.

October 17. Letter to the Surgeon General:

"The contributions to this Museum from the active theater of the recent war with Spain and from the extensive field of subsidiary operations, have been so few and unimportant that it seems desirable to renew the attention of the medical officers to this important subject. The hurry and peculiar military conditions of the Santiago campaign and the amount of work imposed upon Medical Officers in our large camps of instruction, would naturally obscure the more remote interests of the Museum, but from our large general hospitals and hospital ships and the more deliberate methods of our forces of occupation may well be demanded a return to the systematic collection of specimens illustrating the bone and tissue injuries produced by modern firearms and explosives and a careful preservation of such illustrations of disease as may be obtained from cadaveric examination.

"As it will be necessary to add a guide to the preservation of specimens the following suggestions have been prepared:

"Soft tissues are preferably placed in a 20 per cent solution of commercial formaldehyde (or formalin), the specimen being completely covered by the solution. The fluid on very soft tissue, or large masses of tissue, such as the liver, spleen, etc. should be changed after two or three days. When formalin is not obtainable, commercial alcohol may be used. Bones and joints, after having been roughly cleaned, may be simply wrapped in a cloth wet with the preservation solution, and then again wrapped in oiled paper or silk.

"Since glass and earthenware vessels are liable to be broken in transit, with escape of their fluid contents, and damage to the specimens, the use of tin vessels is recommended, the covers to be tightly soldered on. Whatever vessel is used should be packed in sawdust, excelsior packing, stiff paper or equivalent substitute, in a wooden box. Small dry specimens may be sent by mail; and wet specimens also if inclosed in the boxes which have been approved by the Post Office Department.

"Specimens should be carefully numbered and a letter of information forwarded to the Museum when the specimen is shipped;

the letter to contain the number of the specimen, a description of its nature and if possible its history.

"In addition to the contributions specified, those enumerated in Par. 147, Manual for the Medical Department, are especially worthy of consideration, in view of the opportunities offered in our new territory.

"Although Par. 1130, Army Regulations, provides for the transportation of all such contributions through the Quartermaster's Department, it should be known that if the importance of the object, or security, demands a more prompt delivery, the package may be shipped to the Curator of the Museum by express, the charges to be paid here. The receipt of any package will be duly acknowledged and credit given for the contribution."

Signed by Dallas Bache, Col. & Asst. Surgeon General, U.S.A., in charge of Museum and Library Division.

1898. The following publications this year were based more or less on work done at the Museum:

By Dr. Matthews: "Use of rubber bags in gauging cranial capacity." Am. Anthrop., Wash., 1898, XI, 171.

By Dr. Lamb: "Case of cancer of stomach." Trans. Med. Soc. D.C., Wash., 1898-99, III.

"Case of leontiasis ossea." Ibid., 9.
"Case of ovary of cow; ruptured Graffian follicle." Ibid.,28.
"Case of pneumonia and acute pericarditis." Ibid., 29.
"Case of thoracopagus." Ibid., 29.
"Case of fibroma molluscum." Ibid., 70.
"Case of aortic insufficiency." Ibid., 131.
"Case of apoplexy; hemorrhage in thalamus opticus." Ibid.,132.
"Case of fracture of sesamoid bones of horse." Ibid., 132.
"Case of ulcerative endocarditis." Ibid., 151.
"Case of fatal needle puncture of heart." Ibid., 152.
"Case of hydrocephalus in a calf." Ibid., 167.
"Case of occipital meningocele." Ibid., 167.
"Case of anencephalus." Ibid., 168.
"Case of arrest of development in fetus." Ibid., 168.

On March 11, 1899, the working hours of the Museum were restored from 5 to 4 p.m.

On March 13, Dr. McConnell had been appointed a temporary clerk and was this day recommended for promotion.

On April 19, John S. Neate, Hospital Steward, U.S.A., was assigned to duty at the Museum.

On July 21, Col. Dallas Bache, U.S.A., in charge of the Museum and Library Division, wrote as follows to the Surgeon General:

"I have the honor to submit a report of the statistics and administration of the Museum and Library Division for the fiscal year ending June 30, 1899.

"Tables A and B will show the standing of the Museum and Library at the last annual report, the various additions made, and such deductions from the Museum collection as are due to discarding imperfect specimens, or the transfer to other institutions of such material as was thought no longer desirable for the one but useful to the other. The section of Comparative Anatomy and the provisional Section of Anatomy have been thus depleted and further transfer or retirement may prove desirable.

"The question of space for the better accommodation of the present holding of the Museum, as well as for additions, is one that is intruding itself, and some adjustment should be anticipated. Room may temporarily be gained by the further transfer of suitable material but this is likely to be absorbed by the rearrangement of specimens now overcrowded, so that some special and valuable exhibits, the instruments, medical medals, photographs and medical field equipment of our own and foreign military services, will be either unprovided for, or suffer from insufficient and unsuitable presentation. Of these the section of medical field equipment is particularly worthy of completion, but it cannot be accommodated in the main Museum Hall, and rooms now assigned to other than Museum purposes would be required.

"The photographs, medals and instruments also in my judgment, should be removed from the main hall and exhibited upon inquiry in separate rooms.

"As the Museum is frequently sought by investigators in particular lines, the preparation of a catalogue seems desirable, none having printed since 1866, when the number of specimens was comparatively few, and a different classification followed. Such a catalogue, although involving much labor, would, if distributed, make the extensive collection of this Museum widely known and available for students.

"While upon the subject of enlarging or emphasizing the purpose of the Museum it is proper to add that such a maintained purpose would require the entire time and effort of the Curator, and necessitate a prolonged service.

"I hope to complete a revision and a certain rearrangement of the various Museum exhibits during this calendar year."

On October 4, 1899, Dr. W. G. A. Bonwill, dentist, Philadelphia, having died, his administratrix notified the Curator of the Museum

that Bonwill had bequeathed his collection of dental material to the Museum, but on conditions. These conditions the Museum could not accept.

On November 20, Dr. Hodge, Anatomist, sailed for Manila with orders to obtain more especially specimens of shot injuries, dysentery, typhoid fever, malarial fever, the diseases of the country, native medicines, poisons, instruments, weapons, specimens of native dentistry and crania.

Publications this year, based more or less on work done at the Museum:

By J. T. Arwine and D. S. Lamb: "A fifth case of fungous foot in America." Am. Jour. Med. Sc., Phila., 1899, CXVIII, 1898-99. Also reprint.

By Dr. Carroll: "Microscopical report upon a fifth case of fungous foot of India." Ibid., 395.

By Drs. Reed and Carroll: "Bacillus icteroides and bacillus cholerae suis. A preliminary note." Med. News, Phila., 1899, LXXIV, 513.

By Dr. Lamb: "Cases of typhoid fever." Trans. Med. Soc. D.C. Wash., 1899, IV, 2.

"Cases of tuberculosis." Ibid., 10.

"Cases of typhoid fever; Splenic leukemia; Pneumonia and Cancer of Pleura." Ibid., 22.

"Cases of hydronephrosis, Congenital displacement of kidney, Malarial kidney, Atrophy of kidney, and Contracted kidney." Ibid.,51.

"Cases of Cerebral hemorrhage, Congenital cyst of kidney, Congenital diverticula of Colon, and Cerebro-spinal meningitis." Ibid., 59.

"Cases of contracted granular kidneys, Puerperal uterus and appendages with fatal peritonitis." Ibid., 78.

"Case of diverticulum of Meckel." Ibid., 106.

"Cases of Myxoma of peritoneum, Pneumonia, Sarcoma of prostate gland and Tuberculosis." Ibid., 107.

"Cases of fungous foot of India." Ibid., 194.

On January 6, 1900, Dr. Hodge had arrived in Manila.

On February 15, Dr. Reed went to Havana, Cuba.

On April 23, Col. Bache was relieved from charge of Museum and Library, and on April 24 was succeeded by Col. A. A. Woodhull,

U. S. Army.

On May 30, Dr. Hodge reported from Manila that he had collected a number of specimens for the Museum and also a number of tissues for the laboratory of the Army Medical School. He had attended all the autopsies at the First Reserve Hospital and by arrangement, himself made autopsies at the Leper Hospital and Morgue, when possible, and those at the Pest Hospital.

On June 15, Hospital Steward Neate was relieved from duty at the Museum, to obey the order of the Adjutant General's Office of June 4 to proceed to Havana.

On June 21, Drs. Reed and Carroll both went to Havana. Dr. Reed was President of the Board on Infectious Diseases in Cuba. August 1 to 9, Dr. Reed returned.

On September 7, the Report of the Board of Medical Officers appointed August 16, 1898, to investigate "the cause and extensive prevalence of typhoid fever in the various military camps within the limits of the United States," was completed and sent to the Surgeon General. The Board consisted of Dr. Reed as President, and Drs. V. C. Vaughan, of the University of Michigan, and E. O. Shakespeare, of Philadelphia, both of them volunteer surgeons for the war with Spain. Dr. Reed says of Mr. C. J. Myers, the Chief Clerk of the Museum, that he gave "invaluable assistance for two years in the preparation of tables, charts, etc."

On September 28, Dr. Reed again went to Havana. On October 14, he returned to the Museum and again went to Cuba.

About November 1, Dr. Hodge returned to Washington.

On November 30, Capt. Frederick F. Russell, Asst. Surgeon, U.S.A., was assigned to duty at the Museum.

There was no session of the Army Medical School in 1900-01.

Dr. Thomas C. Smith of Washington read a Presidential address before the Washington Obstetrical and Gynecological Society of Washington, October 6, 1899, on the obstetrical and gynecological treasures of the Army Medical Museum (published in Am. Jour. Obst., N.Y., 1900, XLI, 57-63), in which he invited particular attention to the specimens of that class in the Museum.

Publications this year, based more or less on work done at the Museum:

By Drs. Reed and Carroll: "A comparative study of the biological characters and pathogenesis of Bacillus X (Sternberg), Bacillus Icteroides (Sanarelli), and Bacillus of Hog Cholera (Salmon and Smith)." Jour. Exper. Med., N.Y., 1900, V, 215-270.

By Dr. Lamb: "Mythical Monsters, with discussion by Miss J.O. Hall and Mr. F. A. Lucas." Am. Anthrop., N.Y., 1900, II, 277-291. Also cutting.

"Case of vegetative endocarditis." Trans. Med. Soc. D.C., Wash., 1900, V, 9.

"Case of femoral hernia." Ibid., 19.

"Case of retroperitoneal myxoma." Ibid., 65.

"Macroscopic pathology of tuberculosis." Ibid., 67.

"Case of cancer of breast followed by sarcoma of brain and lungs, and tuberculosis of lungs, and cases of tuberculosis." Ibid., 95.

"Case of tuberculosis." Ibid., 128.

"Case of pregnancy after tying both Fallopian tubes." Ibid., 131.

On February 9, 1901, Dr. Reed left Havana for Washington.

On April 13, Col. Woodhull was retired from service by reason of age limit and was relieved from the charge of the Museum and Library. He was succeeded by Col. Calvin DeWitt, U.S.A.

June 4 to 7. Some specimens were sent to the meeting of the American Medical Association at St. Paul, Minn.

On June 22, Dr. Harry Friedenwald of Baltimore, Maryland, in a letter to the Curator stated that at the meeting of the American Medical Association at St. Paul, a resolution was adopted by the Ophthalmic Section requesting the Surgeon General to arrange a permanent historical exhibit of ophthalmoscopes at the Museum. Dr. DeWitt corresponded with those physicians who had loaned ophthalmoscopes at the meeting for exhibition, and in return received some instruments; the other persons declined to give or loan their instruments to the Museum.

Preparations were made to reopen the Army Medical School in October.

There was an exhibit from the Museum at the Buffalo Exposition.

Publications in 1901, based more or less on work done at the Museum:

By Drs. Reed, Carroll and Agramonte: "Experimental yellow fever." Amer. Medicine, Phila., 1901, II, 15.

By Dr. Lamb: "Case of amputation of leg for gangrene." Trans. Med. Soc. Wash. D.C., 1901, VI, 5.

"Case of gunshot fracture of lower jaw of dog." Ibid., 16.

"Case of congenital bilateral hydronephrosis." Ibid., 56.

"Case of goiter and enlarged heart." Ibid., 69.

"Case of hemorrhage into dura mater." Ibid., 69.

"Case of hemorrhage into thalamus; hemianesthesia." Ibid., 95.

"Case of bone removed from brain 43 years after injury." Ibid., 126.

"Case of typhoid fever." Ibid., 139.

"Case of pyosalpinx and purulent pericarditis." Ibid., 139.

"Case of double human monster." Ibid., 139.

"Case of endocarditis." Ibid., 139.

"Liver in yellow fever." Ibid., 147.

"Case of laminitis in a horse." Ibid., 147.

"Case of meningitis, a sequel to pneumonia and endocarditis." Ibid., 148.

"Case of aneurysm of arch of aorta." Ibid., 168.

"Case of primary cancer of pancreas and secondary cancer of liver." Ibid., 199.

"Case of cancrum oris." Ibid., 233.

"Case of cystic tumor." Ibid., 273.

"Case of fibrous pneumonia and pleurisy." Ibid., 273.

"Case of hematosalpinx and calcareous pleuritic plates." Ibid., 326.

"Mummification, especially of the brain." Am. Anthrop., Wash., 1901, III, 294-307. Also cutting.

"Spiculum of bone from shot fracture of skull which rested against the brain." New York Med. Jour., 1901, LXXIV, 213. Also, Reprint.

On April 30, 1902, forty specimens showing tuberculosis were sent to the Tuberculosis Congress, N.Y. City Meeting, May 14-16.

On September 19, Dr. Mew, Chemist to the Surgeon General's Office, died of tuberculosis. Dr. Hodge was afterwards appointed Chemist.

On November 1, Dr. Reed was assigned to duty temporarily as Librarian in addition to his other duties. Dr. Carroll was made Assistant Curator.

On November 23, Dr. Reed died.

On December 3, Dr. McConnell was assigned to duty in the Museum as Anatomist.

The following publications in 1902 were based more or less on work done at the Museum:

By Dr. W. C. Borden, Asst. Surgeon, U.S.A. "The use of the Roentgen ray by the Medical Department, U.S. Army, in the war with Spain (1898)." Washington, Government Printing Office, 1902.

By Dr. Lamb: "Case of pneumonia with right side endocarditis." Wash. Med. Annals, 1902-03, I, 63.

"The 'Buchhold' anatomical and pathological specimens." Ibid., 66.

"Case of chronic internal hydrocephalus." Ibid., 144. Also, Reprint.

"Two cases of cerebral hemorrhage and one of cerebral meningitis; (Diplococcus lanceolatus)." Ibid., 248. Also reprint.

"Case of congenital stenosis of pulmonary valve." Ibid., 307.

"Army Medical Museum ophthalmoscopes." Ibid., 185.

"Two cases of typhoid fever." Ibid., 310.

By Drs. Lamb and W. C. Woodward: "Two cases of subcapsular hepatic hemorrhage in the newborn." Ibid., 113.

"Omphalopagus." Ibid., 487.

"Case of hemorrhage in left lenticular nucleus with left palpebral ptosis; otherwise right hemiplegia. Origin probably embolic." Ibid., 432.

In 1903, specimens from the Museum were sent to the exposition at New Orleans.

On July 3, Dr. Carroll was appointed Curator of the Museum.

On July 20, Col. DeWitt was relieved from duty as Director of Museum and Library, and Col. C. L. Heizmann, U.S.A., succeeded him.

Letter of Dr. Washington Matthews to Col. Heizmann, December 21, 1903:

"When the large collection of human crania and skeletons was removed to the U.S. National Museum from the Army Medical Museum, a number of normal skulls and skeletons, two imperfect brains and the anthropometric apparatus devised by me as well as the Topinard set were, at my suggestion, kept back. I beg that all this material be sent now to the National Museum, since it forms part of the series already there. I shall not be able to take up anthropometric work again, and the National Museum can use the material to a great advantage. This recommendation is made the more cheerfully, since Dr. Ales Hrdlicka, the distinguished physical anthropologist, is now in charge of that division in the National Museum, and can utilize as well as care for the material mentioned. I would also beg you to give or lend the notes that I prepared on these specimens to the National Museum, to enable the Curators to complete and preserve the records. Further information in regard to this matter can be given by Dr. Lamb, the pathologist of the Museum, Mr. Myers, the chief clerk, or by myself."

This letter was favorably endorsed by Col. Heizmann and forwarded to the Surgeon General, who returned it with approval; 621 specimens were sent in January, 1904.

The following publications in 1903 were based more or less on work done at the Museum:

By Dr. Lamb: "Case of syphilitic ulceration and stricture of rectum; gonorrheal tubo-ovarian cyst." Wash. Med. Annals, 1903-04, II, 110.

"Case of amyloid liver and spleen in ulcerated pulmonary tuberculosis." Ibid., 184.

"Two cases of pachymeningitis hemorrhagica interna." Ibid., 191.

"Case of endothelial sarcoma of urinary bladder." Ibid., 203.

"Ectopic pregnancy; analysis of 32 cases." Ibid., 328. Also Reprint.

"Two cases of cerebral hemorrhage." Ibid., 333. Also Reprint.

"Some reminiscences of post mortem work." Ibid., 383-398. Also Reprint.

On January 11, 1904, the hours of work at the Museum were extended from 4 p.m. to 4.30 p.m.

On January 20, six boxes of specimens were loaned to the Tuberculosis Exposition of Maryland.

On July 25, Dr. McConnell died.

On August 11, Mr. N. D. Brecht was temporarily appointed Anatomist.

On December 12, Dr. D. J. Healy was appointed Anatomist and assigned to duty in the Museum.

The following publications in this year were based more or less on work done in the Museum:

"Report on the Origin and Spread of Typhoid Fever in U.S. Military Camps during the Spanish War of 1898." By Walter Reed, Victor C. Vaughan, and Edward O. Shakespeare. 2 Vols. Washington, Government Printing Office, 1904.

By Dr. Lamb: "Case of pachymeningitis hemorrhagica interna following injury." Wash. Med. Ann., 1904-05, III, 10.

"Case of cerebral hemorrhage of ten weeks standing." Ibid., 52.

"Case of hypertrophy of heart due to interstitial nephritis." Ibid., 81.

"Case of multiple subpericardial hemorrhages." Ibid., 81.
"Parasites in heart of dog." Ibid., 82.
"Army Medical Museum." Ibid., 150.
"Three cases of endocarditis, in two of which there was also pericarditis." Ibid., 186. Also, Reprint.
"Some brain weights in the negro race." Amer. Anthrop., Wash., 1904, VI, 364. Also cutting.
"Case of congenital syphilis." Wash. Med. Annals, 1904-05, III, 270. Also reprint.
"Case of osteo-arthritis of knee joint of long standing." Ibid., 275. Also reprint.
"Case of human ischiopagus." Ibid., 276. Also, Reprint.
"Case of tumors of lungs, probably cancerous." Ibid., 264.
"Case of malignant adenoma of pancreas causing pressure on pancreatic and common bile ducts and their tributaries." Ibid., 284.
"Case of malarial spleen." Ibid., 286.
"Case of double ureter." Ibid., 286.
"Capitatum secundarium." Ibid., 321. Also reprint.
"Case of chronic nephritis." Ibid., 366.
"William Manuel Mew. 1835-1902. Obituary." Proc. Wash. Acad. Sci., 1903-04, V, 401-2.
"Case of chronic inflammation of larynx." Wash. Med. Annals, 1904-05, III, 446.

On March 22, 1905, C. J. Myers, Chief Clerk of Museum, died.

May 25, circular letter to surgeons of Washington, D.C.:

Dear Sir:

It gives me pleasure to inform you that the Army Medical Museum is now prepared to accept tumors and other pathological specimens of interest and preserve them after the method of Kaiserling, which is intended to retain the natural coloring. The necessary solutions are ready at all times and if you will kindly favor us with any specimen that you may regard of sufficient interest it will be carried through and you will be free to use it for the purpose of exhibition at meetings, etc. To insure success the specimen should be sent immediately after its removal and before it has become dried or has been immersed in any fluid.

In the absence of the Curator, any specimens turned over to Dr. Healy, the Anatomist, will be properly cared for."

(Signed) James Carroll,
Curator.

[Remark]. The Pathologist of the Museum had been using the Kaiserling process ever since it was brought to the attention of preparators of specimens (1899), so that there was nothing really new in the circular, except the assignment of the Anatomist instead of the Pathologist to receive pathological material.]

On September 7, Dr. Hodge was transferred to the Museum and Library Division.

The following publications in 1905 were based more or less on work done at the Museum:

By Dr. Lamb: "Case of pseudohermaphroditism in a pig." Wash. Med. Annals, 1905-06, IV, 46. Also, Reprint.

"Case of anomalies of urino-genitals and rectum in 7 months fetus, mainly hypertrophy of bladder." Ibid., 48. Also, Reprint.

"Case of cheesy tubercular mesenteric and retroperitoneal glands in adult." Ibid., 349. Also, Reprint.

"Case of tubercular meningitis in an adult." Ibid., 351. Also, Reprint.

"Case of acute yellow atrophy of liver." Ibid., 354. Also, Reprint.

"Case of diphtheria of air passages; death by asphyxia." Ibid., 359. Also, Reprint.

"Case of croupous penumonia and pericarditis." Ibid., 47. Also, Reprint.

On February 8, 1906, the following classification of specimens (not however complete) was adopted. It was made by Dr. Carroll and Dr. Healy and was based largely if not entirely upon that used in the Pathological Laboratory of McGill University, Montreal, Canada:

ARRANGEMENT AND CLASSIFICATION OF MUSEUM.

The arrangement shall be in four main systems, viz.,

1. General Pathology
2. Special Pathology
3. Regional Pathology
4. Miscellaneous.

The classification shall consist of a major or anatomical classification, represented by the units 1 - 0 placed on the left of the decimal point, and a minor or pathological classification represented by the units 1 - 0 placed on the right of the decimal point. The miscellaneous system being represented by the double 0 - thus 00 - placed on the left of the decimal point, and its subdivisions by the units 1 to 0 placed on the right of the decimal point. The normal anatomical units will be represented by the simple units, each specimen being indicated by a small index figure placed at the upper and right side of the unit, thus a normal heart

would be numbered 12^1. One standing for the circulatory system, two for the heart, and the index figure[1] for the individual specimen. The pathological lesions will be represented by the units 1 to 0 placed on the right of the decimal point. Thus a persistent fetal structure in the heart would be numbered 12.11^1, the .1 standing for abnormalities and .11 for persistent fetal structures. The comparative anatomy specimens will be indicated by a small index figure placed to the left and below the anatomical units. Thus the heart of a cow would be numbered 112^1, the small index number to the left indicating the order mammalia. The contributed photographs will be indicated by placing the small index figure used for the individual photograph to the right and below the descriptive number. Thus a photograph of a specimen of persistent fetal structure in the heart would be numbered thus, 12.11_1.

The major or anatomical classification is as follows:

1. Circulatory System:
    - 11. Pericardium
    - 12. Myocardium
    - 13. Endocardium
    - 14. Heart as a whole
    - 15. Arteries
    - 16. Veins
    - 17. Capillaries
    - 18. Blood
    - 19. Lymphatic vessels
2. Respiratory System:
    - 21. Nares
    - 22. Larynx and Trachea
    - 23. Bronchi
    - 24. Lungs
    - 25. Pleura
3. Digestive System:
    - 31. Teeth
    - 32. Mouth, tongue, salivary glands, &c.
    - 33. Pharynx and esophagus
    - 34. Stomach
        - 341. Stomach contents
    - 35. Intestine
        - 351. Small intestine
        - 352. Appendix and cecum
        - 353. Large intestine
        - 354. Rectum
        - 355. Intestinal contents.
    - 36. Peritoneum, Mesentery.
    - 37. Liver.
    - 38. Gallbladder, bileduets.
    - 39. Pancreas.

4. Lymphatic System and Ductless Glands:
    41. Special lymphatic glands
    42. Thymus gland
    43. Thyroid gland
    44. Spleen
    45. Suprarenals.
5. Urogenital System:
    51. Kidney
    52. Ureter
    53. Bladder
    54. Urethra
        541. Contents of urinary system.
    55. Penis
    56. Prostate
    57. Seminal vesicles, vas deferens and cord.
    58. Testes, epididymis and tunica vaginalis.
    59. Scrotum
6. Female Generative System:
    61. Vulva
    62. Vagina
    63. Uterus
    64. Tubes
    65. Ovaries
    66. Broad ligament
    67. Mamma
    68. Gravid uterus
    69. Ovum
        691. Membranes
        692. Placenta
        693. Fetus
7. Nervous System:
    71. Dura Mater
    72. Pia mater
    73. Brain
    74. Medulla and pons
    75. Spinal cord
    76. Nerves
    77. Sympathetic system
    78. Eye
    79. Ear
8. Tegumentary and Muscular Systems:
    81. Skin
    82. Hair
    83. Nails
    84. Muscles and fascia
    85. Cellular tissue.
9. Osseous and Articular Systems:
    91. Bones of the cranium
    92. Bones of the face
    93. Vertebrae
    94. Sternum

95. Ribs
96. Bones of upper extremity
    961. Scapula
    962. Clavicle
    963. Shoulder joint
    964. Humerus
    965. Elbow joint
    966. Bones of forearm
    967. Wrist-joint and joints of hand
    968. Bones of hand
97. Pelvis
    971. Os Innominatum
    9711. Ilium
    9712. Ospubis
    9713. Ischium
98. Bones of lower extremity
    981. Hip joint
    982. Femur
    983. Knee-joint
    984. Bones of leg
    9841. Patella
    9842. Tibia
    9843. Fibula
    985. Joints of ankle and foot
    986. Bones of foot.
    99. Skeleton as a whole
    90. Fragments of bone

0. Regional:
    01. Head
    02. Face
    03. Neck
    04. Trunk
        041. Thorax
        042. Abdomen
        043. Pelvis
    05. Upper extremity
    06. Lower extremity

00. Miscellaneous
    001. Microscopes
    002. Weapons and missiles
    003. Transportation and care of sick
    004. Instruments and Materia Medica
    005. Anthropology
    006. Unclassified.

The minor or pathological classification is as follows:

1. Abnormalities:
    12. Teratomas
    13. Miscellaneous.

.2 Circulatory Disturbances:
(Abnormal distribution of blood and lymph.)
.21 Anemia
.22 Hyperemia
.23 Hemorrhage
.24 Thrombosis
.25 Embolism
.26 Infarction
.27 Edema

.3 Inflammations:
.31 Parenchymatous degeneration or cloudy swelling
.32 Cellular or catarrhal or desquamative.

.4 Infections and Parasites:
.41 Pyogenic cocci
.42 Bacilli
.43 Spirilla
.44 Yeasts and moulds
.45 Protozoa
.46 Vermes
.47 Vermes
.48 Arthropods

.5 Granulomas and General Diseases:

.6 Progressive changes:
.61 Regeneration
.62 Hypertrophy
.63 Histioid tumors
.64 Histioid tumors
.65 Sarcoma

.7 Retrogressive changes.
.71 Atrophy simplu
.72 Ulceration and abscess formation
.73 Perforation and rupture due to disease.
.74 Dilation due to disease
.75 Stenosis due to disease
.76 Calculus formation.

.8 Wounds and Injuries
.81 Wounds, inciser
.82 Ruptures and lacerations
.83 Fractures
.84 Gunshot fractures
.85 Dislocations
.86 Foreign bodies
.87 Abortion

.9 Specific Artefacts:
Mechanical Lesions.

.0 General Supplementary.

Classification for Comparative Anatomy Section:

1. Mammalia
2. Aves
3. Amphibia
4. Pisces
5. Insecta
6. Vermes

.83 Gunshot wounds and fractures.
.831 Contusions.
.832 Lacerations.
.833 Perforations.
.834 Fractures.
.8341 Partial Fracture.
.83411 Fissured. F
.83412 Grooved.
.83413 Pond.
.83414 Gutter.
.83415 Penetrating without fissure.
.83416 Penetrating with fissure.
.83417 Perforating without fissure.
.83418 Perforating with fissure.
.8342 Complete Fracture.
.83421 Transverse.
.83422 Oblique.
.83423 Longitudinal.
.83424 Comminuted.
.83425 Double.
.8343 United Fracture.
.83431 Fair Union.
.83432 Faulty Union.
.83433 Non-Union.

Scheme of Arrangement of Instruments and Apparatus.

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1. Transportation; as ambulances, litters, stretchers, etc.
2. Hospital equipment; beds, bedding, portable baths, screens, stands, etc.
3. Operating room equipment; (not including instruments); tables, stools, etc.
4. Apparel equipment of surgeon, assistants and nurses; gowns, aprons, gloves, etc.
5. Diagnosis; instruments of precision; including Anthropometry.
6. Sterilization of instruments and appliances, mechanical, chemical, thermal.
7. Anesthesia.
8. Hypodermic medication.

9. Deep injection apparatus.
10. Transfusion and intravenous injection.
11. Paracentesis.
12. Cauterization.
13. To increase or diminish heat.
14. Bloodletting and cupping.
15. Counter-irritation.
16. General operative work; knives, forceps, retractors, etc., etc.
17. General operating cases.
18. Pocket cases.
19. Military surgery; first aid packages, pouches, chests, bullet probes, etc., etc.
20. Surgery of respiratory apparatus;
    Artificial respiration.
    Nose and naso-pharynx.
    Larynx and trachea.
    Lung and pleura.

21. Surgery of Digestive apparatus.
    Mouth & Throat.
    Dentistry, with cases.
    Oesophagus.
    Stomach.
    Intestines including Rectum.
    Hernia.

22. Laparotomy.
23. Surgery of Kidneys.
24. Surgery of Bladder and Urethra; with cases.
25. Surgery of Male Generative; with cases.
26. Gynecology; with cases.
27. Surgery of Bones and Joints; with cases.
28. Ophthalmological surgery; with cases.
29. Otological surgery; with cases.
30. Obstetrical surgery; with cases.
31. Fractures and Dislocations.
32. Plastic surgery, as skin grafting and harelip work.
33. Orthopedic.
34. Prosthetic.
35. Electro-therapeutics.
36. Photo-therapeutics.
37. Post mortem work.

Under the head "Diagnosis" the following:

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1. Microscopes and accessories.
2. Examination of blood, and pulse; as hemometers, hemocytometers, hemoglobinometers, etc.
3. Thermometers, sphygmometers, Sphygmographs.

4. Respiration appliances, as tape measures, stethometers, cyrtometers, spirometers, manometers, stethoscopes, phonendoscopes, percussion hammers, pleximeters, etc.

5. Exploring needles and trocars.
6. Aesthesiometers.
7. Urinary analysis.
8. Bacteriology.
9. Location of cerebral fissures etc.
10. Anthropometry including dynamometers, calipers, measures of height, etc.

Dr. Healy was instructed to rearrange the specimens in the Museum. On July 25, he was informed by the Curator, Dr. Carroll, that it was the desire of the Officer in charge of the Museum and Library that the rearrangement and classification should be expedited. To this Dr. Healy replied explaining why the work did not proceed faster, and among other things mentioned that he was subject to interruptions, the most serious of which was that he was required to receive, prepare, mount and record pathological tissues received at the Museum, and that this work was the duty of the Pathologist, who had done it for forty odd years and whose ability to continue it was thoroughly established.

About April 23, Col. Heizmann was succeeded by Col. Valery Havard, U.S.A., in charge of the Museum and Library.

September 6. Letter of Dr. Lamb to Col. V. Havard, Asst. Surg. General, U.S.A.:

"In response to your request a short time ago that I make suggestions concerning the Museum classification, I have the honor to state: When I was assigned to duty in the Museum in 1865 the specimens were under the care respectively of Drs. Otis and Woodward, the surgical and anatomical under Dr. Otis, the medical and microscopical under Dr. Woodward. On the medical side the classification was quite simple, each specimen being classed under the organ which was mainly involved. On the surgical side the classification was a little more complex.

"About the year 1885 after Dr. Billings was appointed in charge of both Museum and Library a new classification was adopted, which was complex in this, that specimens were classed both by organs and regions. The objection to this was that while under the former classification the disease or injury and organ involved indicated approximately where the specimen could be found without the necessity of examining the record; under the second classification there was always a possibility of the specimen being in one of two places. This objection was especially emphasized by Dr. Woodhull when he became the Director of the Museum and Library, because to him had been assigned the duty of preparation of the Surgical Catalogue of the Museum in 1866.

"Dr. Reed, who was made Curator of the Museum in 1893, was given so many duties that he was able to give only limited attention to Museum matters, and very much of the Museum work fell on me, as it had indeed many times before, especially during the illness of Dr. Woodward. The development of bacteriology had brought me to the conclusion that the classification needed revision, and with Dr. Reed's approval I proceeded to make the following change. My conclusion was reinforced by the fact that physicians who wished to consult the Museum specimens almost invariably asked to see specimens that showed some particular condition. For instance: What have you here that shows syphilis? The answer under the second classification would require looking for specimens in twenty or more different places, although the actual number of specimens of venereal diseases was not large.

"My proposition was to collect together in one place all specimens illustrating any one disease of bacteriological or zoological origin, the subarrangement being according to the organ involved. Tuberculosis was well represented; all the specimens were collected and rearranged as I have indicated. It happened that I had just finished the arrangement of the tuberculosis specimens when there was a sort of Tuberculosis Congress called to meet at Baltimore, and a request was made of the Surgeon General that the subject be illustrated there by specimens loaned from the Army Medical Museum. The request was granted and a committee from the Congress came to the Museum, looked over the specimens and made selection. It was a matter of but a few minutes to do this because the specimens were together. Previously it would have required looking up specimens in twenty or more places.

"I followed the same plan with typhoid fever, leprosy, plague, scarlet fever, and some other diseases, and then took embryology, collecting all the specimens, both human and comparative, that illustrated this subject. Following this came the malformations and monstrosities, human and comparative, all except a few minor conditions in individual organs, that it seemed better to retain under the organs themselves. The arrangement was according to Hirst and Piersol. To malformations was appended the specimens of ectopic gestation.

"Then came the animal parasites, arranged according to Raillet, and the diseases caused by them; and next the higher forms of vegetable parasites and the diseases caused by them.

"A dental collection was also made, including therein the anatomy of the jaws and teeth, human and comparative. This collection has been much approved by the dentists.

"I also made a collection of prehistoric morbid anatomy, more especially of the mound builders.

"About this time Dr. Carroll took charge and my work in this direction ceased. Of the classification adopted by him I know but little, and the only suggestion I can make would be simply a plea for simplicity and against complexity.

"With regard to the specimens of comparative osteology which you mentioned in our conversation, I would suggest that a small representative series be preserved for reference and the remainder be disposed of. Most of the specimens are crudely prepared as compared with the similar collection in the National Museum, and from what I have been told I doubt whether these specimens could be used for exchange purposes as you suggested. They have however a teaching value and would be acceptable doubtless to colleges."

October 12 and 29. A number of specimens were donated to the University of Nebraska.

The following publications were based more or less on work done at the Museum:

By Dr. Lamb: "Case of alcoholic hypertrophic cirrhosis of liver and kidneys." Wash. Med. Annals, 1906-07, V, 14.
"Three cases of tuberculosis." Ibid., 163.
"Case of chronic valvular disease of the heart." Ibid., 300.
"Case of invagination of bowel." Ibid., 407.
"Case of strangulated inguinal hernia." Ibid., 408.
"Case of dissecting aneurism of arch of aorta." Ibid., 408.

On February 6, 1907, Mr. David O. Floyd was assigned as Principal Clerk of the Museum Section, Museum and Library Division, by order of the Surgeon General.

In May, a series of 1638 specimens was donated to the McGill University, Montreal, Canada, the Museum of which had been destroyed by fire April 16.

Specimens of historical instruments and photomicrographs were loaned to the American Medical Association at the meeting at Atlantic City, N.J., June 4 to 7.

About August 1, Dr. Healy resigned.

On August 18, 26 specimens of Comparative Anatomy were donated to the Medical Department, Howard University, Washington, D. C.

On September 16, Major Carroll died. Major F. F. Russell, U.S.A., became Curator.

On December 13, a large number of transportation appliances were discarded.

On December 23, Dr. J. S. Neate, Hospital Steward, U.S.A., was appointed Anatomist and assigned to duty at the Museum.

The following publications in 1907 were based more or less on work done at the Museum:

By Dr. Lamb: "Cases of ectopic pregnancy." Wash. Med. Annals, 1907-08, VI, 50.
"Case of gangrene of appendix with diphtheritic ileo-colitis." Ibid., 145.
"Two cases of pneumonia." Ibid., 170.
"Case of cancer of stomach." Ibid., 170.
"Case of aneurism of arch of aorta rupturing externally through an abscess. Persistent left superior vena cava." Ibid.,207.
"Case of acute thyroiditis." Ibid., 243.
"Case of coal miner's lung with cancer nodules." Ibid., 244.
"Noises of cities." Ibid., 251.
"Case of hour-glass contraction of stomach." Ibid., 321.
"Case of double ureter." Ibid., 321.
"Case of amebic dysentery with abscess of liver." Ibid., 354.
"Case of Viavi treatment." Ibid., 372.
"Case of cancer of stomach." Ibid., 531.

In May, 1908, the Bureau of Education, Washington, asked concerning facilities for advanced study and research in the Medical Museum. Reply:- The Museum was open to the public; physicians

Insert: In October, Capt Chas F. Craig was appointed assistant Curator of the museum.

and others, within certain limits, were given access to Museum specimens, workrooms and laboratories for making special researches. Specimens were also loaned for exhibition at Expositions and Congresses.

During the summer Dr. J. R. Barber, 1st Lieut., U.S.A., acted as Curator during the absence of Dr. Russell.

A series of wet specimens was donated to the Baltimore Medical College.

A series of specimens of tuberculosis and 12 photographs of tuberculous lungs were loaned to the Texas Antituberculous Association, and afterwards loaned to the International Congress of Tuberculosis in New York City, November, 1908 to January, 1909.

The following publications in 1908 were based more or less on work done at the Museum:

By Dr. Lamb: "Case of solitary kidney; uretero-pyelo-nephritis, and syphilitic contraction and atrophy of liver." Wash. Med. Annals, 1908-09, VII, 27.
"Perkins metallic tractors." Ibid., 167-174. Also reprint.
"Case of epithelioma of uterus." Ibid., 370. Also reprint.
"Adipocere 96 years after death." Ibid., 384. Also reprint.
"Gallstones; analysis of 61 cases." Ibid., 429.

In December, 1909, Col. Havard was succeeded by Col. Louis A. LaGarde, U.S.A., in charge of the Museum and Library.

In the Report of the Surgeon General for the fiscal year 1908-09, p. 154, is a statement of the examinations made in the laboratory of the Museum; 1436 examinations in typhoid cases, in some detail. Also the work done in the Clinical Laboratory.

The following publications in 1909 were based more or less on

work done at the Museum:

By Dr. Neate: "The etiology and pathology of bilateral polycystic degeneration of kidneys." Am. Jour. Obstet., N.Y., 1909, LX, 61.

By Dr. Lamb: "Case of ainhum." Wash. Med. Annals, 1909-10, VIII, 79.

"Case of pneumococcic leptomeningitis." Ibid., 208.
"Case of cerebral apoplexy." Ibid., 213.
"Case of typhoid fever." Ibid., 214.
"Case of syphilis of liver and other organs." Ibid., 290.
"Case of pneumonia." Ibid., 318.
"Case of melanotic cancer of heart and kidneys." Ibid., 320.

On March 9, 1910, Dr. Gray died. March 29 Dr. Neate was appointed Microscopist and Bacteriologist.

On June 4, Col. LaGarde was succeeded by Lieut. Col. W. D. McCaw, U.S.A., in charge of the Museum and Library. Col. McCaw had been Librarian since October 3, 1903.

On June 7, a letter of Major F. F. Russell to the Surgeon General, stated that the Army Medical School was being moved from the Museum building to new quarters, 721 13th Street, N.W., and that it would be necessary to move the laboratory (except the chemical laboratory of the Surgeon General's Office) because it was under the charge of Dr. Russell, in which he did much technical work, the routine examination of water supplies, specimens of blood for malaria, typhoid and Malta fevers, and in connection with vaccination against typhoid; also examinations of pathological material. It would also be necessary to set apart a place in the new building for specimens from the Museum to be used in the school instruction; it would not be practicable to keep moving the specimens backward and forward. The Microscopist of the Museum was also asked for to have charge of these specimens. The changes would not interfere with the use of the

Museum by the public and medical institutions.

The following publications this year were based more or less on work done at the Museum:

By Drs. J. D. Morgan and D.S. Lamb: "Laennec and the stethoscope." Wash. Med. Annals, 1910-11, IX, 260. Also reprint.
By Dr. Lamb: "Case of papyraceous fetus." Ibid., 305.
"Case of angiosarcoma of neck." Ibid., 415.
"Aneurysms in Army Medical Museum." (Abstract) Ibid., 438.

On February 20, 1911, Dr. Sims S. Hindman was appointed Anatomist. On March 6, he was assigned to duty at the Museum. On August 31, he resigned.

September 18 to 30, International Municipal Congress and Exposition at Chicago. The Museum loaned a model showing the Baltimore sewerage plan.

The following publications in 1911 were based more or less on work done at the Museum:

By Dr. Lamb: "Intracranial tumors." Wash. Med. Annals, 1911-12, X, 12.
"Case of perforating ulcer of duodenum." Ibid., 36.
"Case of strangulation of ileum by loop of appendix." Ibid., 36.
"Aneurysms in Army Medical Museum, Washington, D.C." Mil. Surg., 1911, XVIII, 119. Also reprint.
"Malformations and monstrosities in the Army Medical Museum." (Abstract.) Wash. Med. Annals, 1911-12, X, 72.
"Tumors of male breast." Ibid., 250. Also reprint.
"Hypertrophied ova of birds." Ibid., 324.

On March 19, 1912, Dr. Ralph M. LeComte was appointed Anatomist.

On April 28, Dr. Neate died of cancer of liver.

On June 20, Dr. LeComte was appointed Microscopist and Bacteriologist.

On July 6, Dr. J. R. Scott was appointed Anatomist.

The following publications in 1912 were based more or less on work done at the Museum:

By Dr. Lamb: "Leprosy." Wash. Med. Annals, 1912-13, XI, 19. Also reprint.

"Malformations and monstrosities in the Army Medical Museum." Ibid., 34-56. Also, Reprint. Also in Mil. Surgeon, 1911, XXIX, 374.

"Epidemic cholera specimens in the Army Medical Museum." Ibid., 104. Also reprint.

"Specimens in Army Medical Museum from prehistoric peoples." Ibid., 109-118. Also reprint.

"Case of carcinoma of stomach." Ibid., 251. Also, Reprint.

On August 8, 1913, Col. McCaw was relieved by Lieut. Col. C. C. McCulloch, U.S.A., as Librarian. On September 1, Captain Clegg was relieved from duty as assistant Curator

On September 22, Dr. LeComte resigned to enter the Medical Reserve Corps.

On October 7, Dr. Scott was appointed Microscopist and Bacteriologist, and October 31, Dr. C. S. Ludlow was appointed Anatomist temporarily.

September-October. International Congress on Hygiene and Demography. Wax models and wet specimens were loaned by the Museum. Preliminary to this Congress was a meeting of the National Mouth Hygiene Association, to which the Museum loaned specimens; and also a meeting of the National Dental Association, September 9 to 14.

October 15, Major F. F. Russell was relieved from duty as Curator, and Major E. R. Whitmore, U.S.A., appointed.

On November 21, Col. W. D. McCaw made the following memorandum for the Surgeon General:

"The Museum feature of the Museum and Library Division of the Surgeon General's Office has for many years been almost at a standstill. While the Army Medical School occupied a large part of the present building, the energies of the Museum staff in practically all the laboratory work were expended in teaching the class and in making original investigations, principally

bacteriological, into questions of great importance for the Army at large and the Medical Corps in particular. The results have been so brilliant, including the self-instruction of Walter Reed and James Carroll, the development of anti-typhoid prophylaxis, and the education of a host of valuable young medical officers, that no excuse is needed for having temporarily ceased to develop the Museum feature proper, to wit: the collection, preparation and exhibition of specimens illustrating medicine in all its branches. This feature was necessarily neglected because of the preponderating importance of the brilliant work undertaken and carried out successfully.

"Many new specimens have indeed been accumulated; the Museum has been added to in some new directions and much obsolete material has been taken from exhibition to give place to more valuable and up to date specimens. The only room in the building especially adapted to exhibition and built for that purpose is now much overcrowded, and yet it contains only the pick of the collection. As space was gained by the removal of the School two large rooms were selected for exhibition purposes and promptly filled. These rooms however are not easily accessible to the public and the nature of the detached selections is not very interesting or educational to the average visitor. In the space gained from the School the Library also overflowed just in time to save it from being so choked with its own material that it was becoming impossible to keep track of or to find a paper wanted when it was a pamphlet or document or number of any unbound periodical.

"The housing of the Library is now, although not ideal, at least satisfactory and more room will not be urgently required for some years.

"On the Museum side conditions are unsatisfactory. There is indeed room for office work, for laboratory preparation of new specimens, and for photography there is an excellent gallery, but for exhibition purposes no satisfactory room is now available. The Museum building contains board rooms for the examination of officers, rooms for the architect force of the Surgeon General's Office, the Chemist of the Surgeon General's Office, and the force employed in distributing blank forms, publications of the office and medical journals. None of these rooms are well adapted for exhibition. The Adjutant General's Department occupies several small office rooms and one very large room, the full length and breadth of the Library Hall. Although it is not high pitched and not lighted from above, this room would furnish space for the overflow of the Museum and make a fairly good exhibition hall. The Surgeon General's Office is a growing institution and the Museum should not be cramped in its growth for want of ample and suitable space. If the rooms now occupied by the Adjutant General's Department were available for Museum purposes, and the entire building given over to the Medical Department, the problem would be solved for many years, until the time comes for the Army School, the Library and the Museum to be fittingly established in buildings of their own on the beautiful reservation of the Walter Reed Hospital."

The following publications in 1913 were based more or less on work done at the Museum:

By Dr. Lamb: "Case of perforating ulcer of duodenum." Wash. Med. Annals, 1913, XII, 99. Also reprint.
"Hermaphroditism specimens." Ibid., 173.
"Fractures of patella." Ibid., 187.
"Case of large fibroma of ovary." Ibid., 299.
"Thoracopagus." Ibid., 338.

In 1914, a series of specimens of parasites was donated to the Tulane University, New Orleans, Louisiana.

On February 26, Dr. A. A. Eisenberg was appointed Anatomist.

On August 28, some specimens of anatomy were donated to the Superintendent of Public Schools, Greenville, Alabama.

On September 5, some wet specimens were donated to the Public Schools, Baltimore, Md.

On November 28, specimens were loaned to the Panama-Pacific Exposition, namely; a painting of a soldier, an incinerator and photographs.

On December 14, some specimens were donated to the University of Alabama.

The following publications this year were based more or less on work done at the Museum:

By Dr. Lamb: "Case of malformation; epignathus." Wash. Med. Annals, 1914, XIII, 135. Also reprint.
"Case of supernumerary toe in Egyptian mummy." Ibid., 161.
"Another case of polyposis gastrica; polyadenoma." Ibid., 180. Also, Reprint.
"Cysts of liver." Ibid., 242. Also, Reprint.
"Monstrous twin duck." Ibid., 213.
"Dr. J. B. Murfree's case of lithopaedion." Ibid., 254. Also, Reprint.
"Hairballs." Ibid., 300. Also, Reprint.
"Injury to bone." Ibid., 366.

On June 11, 1915, specimens were donated to the Georgia State Board of Health; typhoid fever, tuberculosis and dysentery.

August 4, Major Whitmore was relieved from duty as Curator and Col. McCulloch appointed Curator in addition to Librarian.

The following publications in 1915 were based more or less on work done at the Museum:

By Dr. Lamb: "Bilateral ankylosis of temporomandibular joint." Wash. Med. Annals, 1915, XIV, 43.
"Case of leontiasis ossea." Ibid., 44.
"Diseases and injuries of pancreas." Ibid., 46.
"Scarlet fever; desquamated casts. Ibid., 347.

February 24, 1916, a specimen of human quintuplets was received; quintuplets occur about once in a million births.

In April the Hookworm Exhibit of the International Health Commission of the Rockefeller Foundation arrived from San Francisco and was installed in the Museum.

June 23, Col. McCulloch was relieved from duty as Curator and Colonel William O. Owen appointed.

August 14, Dr. Eisenberg resigned as Anatomist and August 29, Dr. C. S. Ludlow was appointed temporarily.

The following publications in 1916 were based more or less on work done at the Museum:

By Dr. Lamb: The Army Medical Museum; a history. Washington Medical Annals, 1916. XV, 15.
Actinomycosis and dentigerous cysts. Ibid. 61.
Cases of ulceration and perforation of stomach. Ibid. 96.
The Army Medical Museum in American Anthropology: Proceedings of the Nineteenth Congress of Americanists, Washington, (1915), 1917, 625.
By Dr. James R. Scott - "Tuberculosis of the tongue." Am. Jour. Med. Sci., Phila., 1916. LII, 411.

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This collation would have been much easier to make if the records of the work done in the Museum building had been kept by themselves. As a matter of fact the only separation of records in the early period was into what may be called surgical and medical, that is to say, the Curator of the Museum, who also had charge of preparing the Surgical History of the Civil War, had his set of books, and the officer who had more particular charge of the medical, microscopical and comparative anatomy portions of the Museum and who also had charge of the preparation of the Medical History of the War, had his separate records. But each of these officers kept a chronological record that included not only the Museum proper and the work of the War History, but a multitude of other matters which these officers were called upon from time to time to attend to.

Subsequently the Museum and Library records were more or less intermixed and also with the records of the Record and Pension Division as well as the Division of Surgical Records. Most of the records are in script and in many cases difficult to read; in many cases also only the official correspondence is available, the letters inspiring which are not on file. All these conditions have made the work of collation much more tedious and unsatisfactory than would otherwise have been the case.

Attention is invited to the fact that the post mortem work done by the Museum employees carried more or less risk with it. In a number of cases marked illness supervened upon such work; erysipelas, pneumonia and septicemia.

Many photographs have been given away of which there is no record.

The Museum appropriations were made by Congress for the preparation and preservation of specimens. These terms are variously construed by different Auditors and Controllers. Thus in 1891 the Second Auditor disallowed certain bills paid by Dr. Charles Smart, Major, and Surgeon, U.S.A. Dr. Smart was then Medical Store Keeper. The matter was referred to Dr. Billings, Curator of the Army Medical Museum, who replied as follows:

"In my opinion the expenditures for repairs, etc. at the Army Medical Museum made on the enclosed voucher were necessary to secure the preservation of specimens in the Museum, and are therefore chargeable to the Museum appropriation. The construction of the blind drain charged for, was necessary to keep the walls and floor of the large half-basement room on the West side of the building dry, so that the ambulances, medicine wagons, harness, pack-saddles, etc. kept for exhibition in that room should not become covered with mould and be thus rotted and destroyed. In like manner the repairs of the roof have been a necessity to prevent the dripping of water through upon the cases and specimens."

The number of specimens in the Museum June 30, 1916, was 47,313; comprising 13,089 pathological, 1251 anatomical, 601 comparative anatomy, 12,916 microscopical, 4,014 miscellaneous, 293 provisional anatomy, and photographs (including about 11,000 negatives), 15,149.

Since the beginning of the collection in 1862 about 12,000 specimens have been donated to institutions, including colleges, hospitals, schools, boards of health, etc., or exchanged or discarded.

The number of contributors is 2189.

The following is a list of persons and institutions, each of which has contributed to the Museum 25 or more specimens:

25 specimens: Drs. F. A. Ashford and S. M. Burnett, Washington, D.C.; Columbian College Medical Faculty, Washington, D.C., Dr. Elliott Coues, Med. Cadet, afterwards Asst. Surgeon, U.S.A.; Dr. W. D. Crosby, Surgeon, U.S.A.; Dr. A. H. Fuller, Dentist, St. Louis, Mo.; Dr. J. B. Lewis, Surgeon, U.S. Vols.; Dr. G. S. Palmer, Freedmen's Hospital, Washington. Those by Dr. Burnett were mostly extirpated eyes.

26 specimens; Dr. W. E. Waters, Asst. Surgeon, afterwards Surgeon, U.S.A.

27 specimens; Dr. W.M. Notson, Asst. Surgeon, afterwards Surgeon, U.S.A.

28 specimens: Drs. C. W. Jones, Surgeon, U.S. Vols. and C. E. Munn, Asst. Surgeon, U.S.A.

29 specimens: Drs. L. H. Brailey, Vet. Surgeon, U.S.A., J.E. Summers, Surgeon, U.S.A., and O. P. Sweet, Actg. Asst. Surgeon, U.S.A. and J.H. Ford, Asst. Surgeon, U.S.A.

31 specimens: Dr. D. P. Hickling, Washington, D.C.; Christopher Johnson, Baltimore (mostly calculi); P. J. Murphy, Columbia Hospital, Washington, and D. P. Smith, Surgeon, U.S. Vols.

32 specimens: Drs. Henry Bryant, Surgeon, U.S. Vols. and Henry McElderry, Asst. Surgeon, U.S.A., and Hospital Steward A.J. Schafhirt, from post mortem examinations at Freedmen's Hospital, Washington.

33 specimens: Drs. A. I. Comfort, Actg. Asst. Surgeon, U.S.A.; W. W. Johnston, Washington, D.C.; C. A. McCall, Asst. Surgeon, U.S.A.; and H. R. Tilton, Asst. Surgeon, afterwards Surgeon, U.S.A.

34 specimens: Dr. J. H. Nartholf, Asst. Surgeon, U.S.A.

35 specimens: Dr. Charles Page, Surgeon, U.S.A.

36 specimens: Drs. George K. Smith, Actg. Asst. Surgeon, U.S.A.; and B.A. Vanderkieft, Surgeon, U.S. Vols.

37 specimens: Dr. H. C. Yarrow, Actg. Asst. Surgeon, U.S.A., Washington, D.C.; mostly Indian crania.

38 specimens: Drs. J. H. Brinton, Surgeon, U.S. Vols.; Carlos Carvallo, Asst. Surgeon, U.S.A.; H. S. Hewit, Surgeon, U.S. Vols.; and G. L. Pancoast, Surgeon, U.S. Vols.

39 specimens: Dr. S. S. Adams, Washington, D.C., mainly from Children's Hospital, Washington.

40 specimens: Dr. P. S. Conner, Asst. Surgeon, U.S.A.

41 specimens: Dr. G. P. Hachenberg, Actg. Asst. Surgeon, U.S.A.

42 specimens: Drs. J. S. Billings, Surgeon, U.S.A.; and G.M. McGill, Asst. Surgeon, U.S.A.

43 specimens: Drs. J.C. McKee, Surgeon, U.S.A.; and Clinton Wagner, Surgeon, U.S.A.

44 specimens: Dr. Mary Parsons, Washington, D.C.

45 specimens: Dr. C. F. French, Surgeon, U.S. Vols.

46 specimens: College Physicians and Surgeons, Philadelphia;

Drs. H. Culbertson, Surgeon, U.S. Vols.; and A. C. Girard, Asst. Surgeon, U.S.A.

48 specimens: Drs. B.J.D. Irwin, Surgeon, U.S.A.; J. A. Lidell, Surg. U.S. Vols.; and C.B. Robinson, Vet. Surgeon, Washington, D.C.; Dr. Robinson's from his Veterinary Hospital, Washington.

49 specimens: Dr. J. Taber Johnson, Washington, D.C.

50 specimens: Dr. D. H. Goodwillie, Dentist, Yonkers, N.Y., models; Drs. Johnson Eliot and T. C. Smith, Washington, D.C.

51 specimens: Dr. B. E. Fryer, Surgeon, U.S.A.

52 specimens: Drs. W. F. Norris, Asst. Surgeon, U.S.A.; and C.A. Treuholtz, Actg. Asst. Surgeon, U.S.A. Those from Treuholtz were from Fort Bayard Tuberculosis Hospital.

53 specimens: Dr. C. C. Byrne, Surgeon, U.S.A., and I.S. Stone, Washington, D.C.

56 specimens: Dr. Elisha Sterling, Cleveland, Ohio.

58 specimens: Ebenezer Swift, Surgeon, U.S.A.; mostly Indian crania.

59 specimens: Drs. J. T. Hodgen, Surgeon, U.S. Vols., and J.W. Bovee, Washington, D.C.

60 specimens: Drs. Wm. C. Minor, Asst. Surgeon, U.S.A.; and Israel Moses, Surgeon, U.S. Vols.

62 specimens: Dr. Fred Schafhirt, Army Medical Museum. Mostly comparative anatomy.

66 specimens: Dr. Wm. H. Arthur, Surgeon, U.S.A.

67 specimens: Dr. G. W. Acker, Washington, D.C. Mostly from Children's Hospital, Washington.

70 specimens: Dr. J. F. Hartigan, Washington, D.C. Mostly from post mortem examinations made for the coroner.

73 specimens: Drs. J.W. S. Gouley, Asst. Surgeon, U.S.A.; and N. S. Lincoln, Washington, D.C.

74 specimens: Dr. Harrison Allen, Asst. Surgeon, U.S.A.

76 specimens: Drs. W. W. Keen, Actg. Asst. Surgeon, U.S.A.; and B. B. Miles, Actg. Asst. Surgeon, U.S.A.

77 specimens: Dr. D. C. Peters, Surgeon, U.S.A.

79 specimens: Dr. O.A. Judson, Surgeon, U.S. Vols.

80 specimens: Board for Study of Tropical Diseases, Manila, P.I.

82 specimens: Dr. J. H. Armsby, Asst. Surgeon, U.S. Vols.

83 specimens: Dr. Louis A. LaGarde, Surgeon, U.S.A. Mostly experimental shot fractures.

86 specimens: Dr. P. F. Eve, Nashville, Tenn. Mostly calculi.

87 specimens: Dr. N. R. Moseley, Surgeon, U.S. Vols.

91 specimens: Dr. G. F. Shrady, Actg. Asst. Surgeon, U.S.A.

95 specimens: Dr. H. M. Dean, Actg. Asst. Surgeon, U.S.A.

101 specimens: Dr. R. B. Bontecou, Surgeon, U.S. Vols.

106 specimens: Dr. R. F. Weir, Asst. Surgeon, U.S.A.

111 specimens: Dr. E. R. Hodge, Army Medical Museum. From Manila, P.I.

113 specimens: Lieut. G. M. Wheeler, U.S.A. Mostly crania.

122 specimens: Dr. Joseph Leidy, Actg. Asst. Surgeon, U.S.A.

123 specimens: Dr. W. H. Forwood, Surgeon, U.S.A.

136 specimens: Dr. S. S. Bond, Hospital Steward, U.S.A. Post mortem examinations at Freedmen's Hospital, Washington, D.C.

137 specimens: Dr. D. W. Bliss, Surgeon, U.S. Vols.

144 specimens: Dr. Z. T. Daniel, Indian Service. Teeth.

160 specimens: American Society of Orthodontists. Plaster casts of dentures.

161 specimens: Dr. R. Ottolengui, Editor "Items of Interest." Dental.

170 specimens: Clarence B. Moore, Philadelphia. Bones from Indian burial places.

171 specimens: Dr. Samuel Sexton, Dentist, New York City. Plaster casts of dentures.

205 specimens: Dr. Edwin Bentley, Surgeon, U.S. Vols., and Asst. Surgeon, U.S.A.

238 specimens: Dr. Wm. Thomson, Asst. Surgeon, U.S.A.

313 specimens: Unknown.

527 specimens: Dr. D. S. Lamb, Army Medical Museum. Largely specimens from Freedmen's Hospital, Washington.

1582 specimens: From Smithsonian Institution and National Museum. Mostly Indian crania, which were eventually returned.

The specimens from Dr. Hodge were from the Philippines and mostly from tropical diseases. Those from the Columbian College Medical Faculty were in exchange for models to be used in teaching. In the Dental Collection, Dr. Ottolengui assisted in acquiring specimens for the collection by the publicity he gave to the effort in his "Items of Interest"; and Drs. Donnally, Finley, and others of Washington materially helped.

In many cases the contributions were almost entirely surgical, especially those from Army Medical Officers during the civil war; those by Allen, Armsby, Ashford, Bliss, Bontecou, Bovee, Brinton, Bryant, Byrne, Conner, Dean, Eliot, Gouley, Hewitt, Hodgen, Jones, Judson, Keen, Lewis, Lidell, Lincoln, McCall, McGill, McKee, Miles, Moseley, Moses, Munn, Norris, Notson, Pancoast, Peters, Shrady, Smith, Stone, Summers, Thomson, Vanderkieft, Wagner and Weir. In some cases the contributions were credited to the officer in charge

of the hospital, whether he had anything actually to do with procuring the specimen or not; this was particularly true during the time of the civil war and partly explains the large number of specimens credited to some names.

In 1865-66, a series of 100 post mortem examinations was made at the Freedmen's Hospital, Washington, by attaches of the Museum, who then had the rank of Hospital Steward; A. J. Schafhirt made 9 examinations, and S. S. Bond made the rest; D. S. Lamb assisting Bond after the 15th examination. About 150 specimens were obtained from these examinations. After 1878, Dr. Lamb recommenced making examinations at Freedmen's Hospital. He has made in all about 1300 post mortem examinations, for Army medical officers, civilian physicians, at hospitals, etc.; quite a number on the lower animals. Usually the specimens were credited to the person for whom the examination was made. From these examinations by Dr. Lamb, the specimens obtained added over 1500 to the Museum collection.

The specimens received from the Smithsonian and National Museums were mostly crania which were afterwards returned to the latter. A large number of specimens of comparative anatomy were also received from and most of them afterwards returned to the National Museum.

The Hemenway collection was received in 1887-91 from Arizona, and consisted of many boxes of bones all of which were eventually given to the National Museum.

Post mortem examinations have been made by attaches of the Museum probably ever since the Museum was begun. But the available

records of such examinations include only those made at the Freedmen's Hospital in 1865-66, and those afterwards by Dr. Lamb. These records are very nearly complete. From them it appears that 714 were made at the Freedmen's Hospital, of which Dr. Lamb made 614 and assisted at 85 others.

The next highest number of post mortem examinations made by Dr. Lamb was 38 made for Dr. Mary Parsons. The next is 28 for Dr. D. C. Patterson, when he was Coroner. Then 22 for Dr. T. C. Smith. Next, 20 respectively for the Children's Hospital and Dr. W. W. Johnston. Next, 16 at the Soldiers Home, eleven for Dr. I. H. Lamb, nine for Dr. G. Wythe Cook, eight for Drs. N. S. Lincoln, G. L. Magruder and E. C. C. Winter. Seven for Drs. R. G. Mauss, G. S. Palmer, and F. J. Shadd. Six for Drs. S. S. Adams, H. H. Barker, J. Taber Johnson and P. J. Murphy. Five for Drs. C. W. Brown, J. R. Francis, H. D. Fry, E. F. King, J. F. Moran and H. C. Yarrow. Four for Drs. J. O. Adams, S. C. Busey, S. L. Cook, Johnson Eliot, Edgar Janney, R. S. Lamb, W. O. Muncaster, U. S. National Museum, J. T. Sothoron, A. W. Tancil, J. Harry Thompson, J. M. Toner, J. W. Van Arnum and at the Washington Barracks Hospital. Three for Drs. G. N. Acker, L. J. Draper, J. L. Eliot, C. W. Franzoni, J. K. P. Gleeson, T. E. McArdle, E. L. Morgan, R. M. O'Reilly, of the Army, W. H. Ross, J. O. Stanton and John Walter. Two for Drs. A. C. Adams, E. A. Balloch, C. V. Boarman, J. E. Brackett, J. H. Bryan, J. W. Chappell, Amelia Erbach, C. M. Ford, A. Y. P. Garnett, C. E. Hagner, Mary E. Hart, J. F. Hartigan, D. H. Hazen, I. J. Heiberger, J. G. F. Holston, E. S. Kimball, Frank Leech, J. W. Little, E. C. Morgan, H. M. Newman, Basil Norris of

the army, C. A. Norton, G. N. Perry, S. J. Radcliffe, Grace Roberts, E. M. Schaeffer, I. S. Stone, M. L. Strobel, W. H. Taylor and S.R. Watts. One each for Drs. B. B. Adams, W. H. Atkinson, Frank Baker, R. W. Baker, J. H. Baxter of the Army, H. W. Beatty, A. Behrend, E. O. Belt, H. M. Bennett, J. R. Bigelow, D. W. Bliss, J. E. Bliss, J. W. Bovee, P. H. Brooks, R. W. Brown, M. Bruckheimer, S. M. Burnett, W. K. Butler, C. T. Caldwell, James Carroll of the Army, D. W. Chadwick, C. W. Childs, C. R. Collins, G. T. Cook, J. R. Devereux, J. E. Baxter, H. C. Duffey, W. W. Evans, G. P. Fenwick, F. C. Fernald, R. A. Foster, R. D. DeL. French, C. B. Gilbert, C. F. Goodell, N. F. Graham, L. S. Green, W. P. Green, George Washington University Hospital, B. L. Hardin, A. S. Helton, Frances Hillyer, R. T. Holden, W. L. Hudson, W. D. Hughes, Lincoln Johnson, C. S. Keyser, N. E. King, D. O. Leech, J.W.H. Lovejoy, S.L. McCullough, E. P. Magruder, C. H. Marshall, Thos. Martin, J. P. Miller, J. T. Mitchell, G. G. Morris, O. M. Muncaster, R. A. Neale, G. C. Ober, B. G. Pool, B. F. Pope of the Army, D. W. Prentiss, J. J. Purman, C. B. Purvis, J. H. Ramsburgh, J. R. Reily, George Rice, H. A. Robbins, W. L. Robins, D. K. Shute, R. F. Sillers, J. J. Slattery, M. D. Spackman, C. G. Stone, D. B. Street, J. L. Suddarth, S. A. Sumby, J. J. Sumner, J. Ford Thompson, Grafton Tyler, A. W. Upshaw, T. S. Verdi, S. J. Waggaman, H. J. Williams, E. W. Williston, C. S. Winslow, J. J. Woodward of the Army, Mary Wooster and J.T. Young.

It might be added that among the names of those operated on were George Washington, Patrick Henry and Daniel Webster.

In one way the most interesting collection in the Museum is that of gunshot wounds of bone. Nearly all of them are from engagements of the Civil War; mostly what are called recent fractures, others showing sequelae, especially osteomyelitis. Of course they were due to missiles used at that time, the round bullet, rifled or minie bullet, buckshot, cannon balls and fragments of shell. Besides the shot wounds there are fractures by swords and sabres, arrows and tomahawks; and a few by bayonets. Bayonet wounds, however, during the Civil War were relatively few.

Besides these fractures there are many others, due to falls, blows, railroad accidents, and many in which the cause is unknown.

Of the large number of what are called wet specimens, the most interesting are those from infectious diseases: typhoid fever, tuberculosis, yellow fever, pneumonia, smallpox, Asiatic cholera, leprosy, the plague, dysentery, diphtheria, pellagra, glanders, cerebro-spinal meningitis, syphilis, and hospital gangrene.

Then there are specimens of embryology, human and comparative, wet specimens and models. Malformations and monstrosities, human and comparative, and this series also includes ectopic gestation. Animal and vegetable parasites; here may be mentioned the fungous foot of India.

There are many models, some in papier maché, others in plaster of Paris, and still others in what is called cathcartine, and the Baretta preparations. These models show normal and morbid anatomy. The Baretta preparations especially show the rarer forms of skin diseases. Some models like the full sized papier maché mannikins, are quite expensive.

There is a large collection of bones classed as prehistoric and pre-Columbian. Also, a large collection of specimens illustrating dental anatomy, both human and comparative, dental pathology and therapeutics.

A large series of transparencies showing especially the various forms of bacteria and protozoa and also, photographs of the same.

A larges collection of instruments, a series of microscopes, historical, probably the most complete in this country. Also accessories. Anthrometrical apparatus. Clinical thermometers, stethoscopes, ophalmoscopes, sphygmomanometers, instruments for vaccination and hypodermic syringes, all historical. Bier's vacuum instruments, besides instruments generally. Also, facsimiles of instruments found at Pompeii.

Medical military chests and pouches, ambulances and litters, missiles and weapons of different nations.

A series of Buchhold preparations in capsules, showing parasites and morbid anatomy. A series of rachitic pelves.

Sections of bones showing internal structure. Casts of skulls, racial. A series of frozen sections and another of dissections.

Diseases and injuries of viscera, eye, ear, nose, etc.

Calculi, biliary, renal, vesical.

A miscellaneous series comprising a cast of the fractured arm of the missionary explorer, Livingstone; cast of the brain of the deaf, mute and blind Laura Bridgeman; the injured parts in the case of John Wilkes Booth; the fractured leg of General Sickles; the skull and enlarged spleen of Guiteau, the assassin of Garfield, and many other specimens of general interest to the layman as well as the physician.